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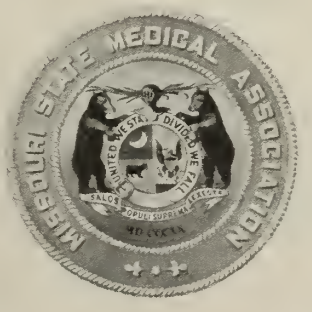
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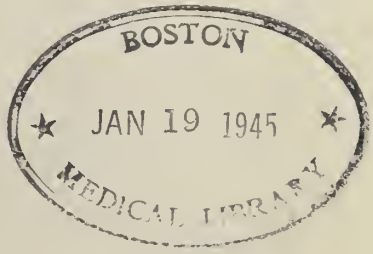
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ORIGINAL ARTICLES

The Heart in Hypertension
Recent Advances in the Management of Hypertension
Psychogenic Factor in Hypertension
A Simple View of the Hypertension Question
Case Reports of Barnes Hospital





EDITORIALS

The Journal
Missouri Medical Service
Missouri Doctors in Service
"The Doctor Glares at State Medicine"
Wartime Health and Education
Approved Hospitals

(Contents Index Page 5)

ANNUAL SESSION, APRIL 22, 23, 24, 1945

9 out of 10 cases of EPILEPSY are treated in the home





Of the more than a half-million persons in the United States who suffer from epilepsy, only about 50,000 are in public institutions.[1] Thus, about 90 per cent of the therapy of this disease rests on the shoulders of the physician in private practice.

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1. Tracy Putnam: Convulsive Seizures, p. 4, J.B. Lippincott Co., 1943.

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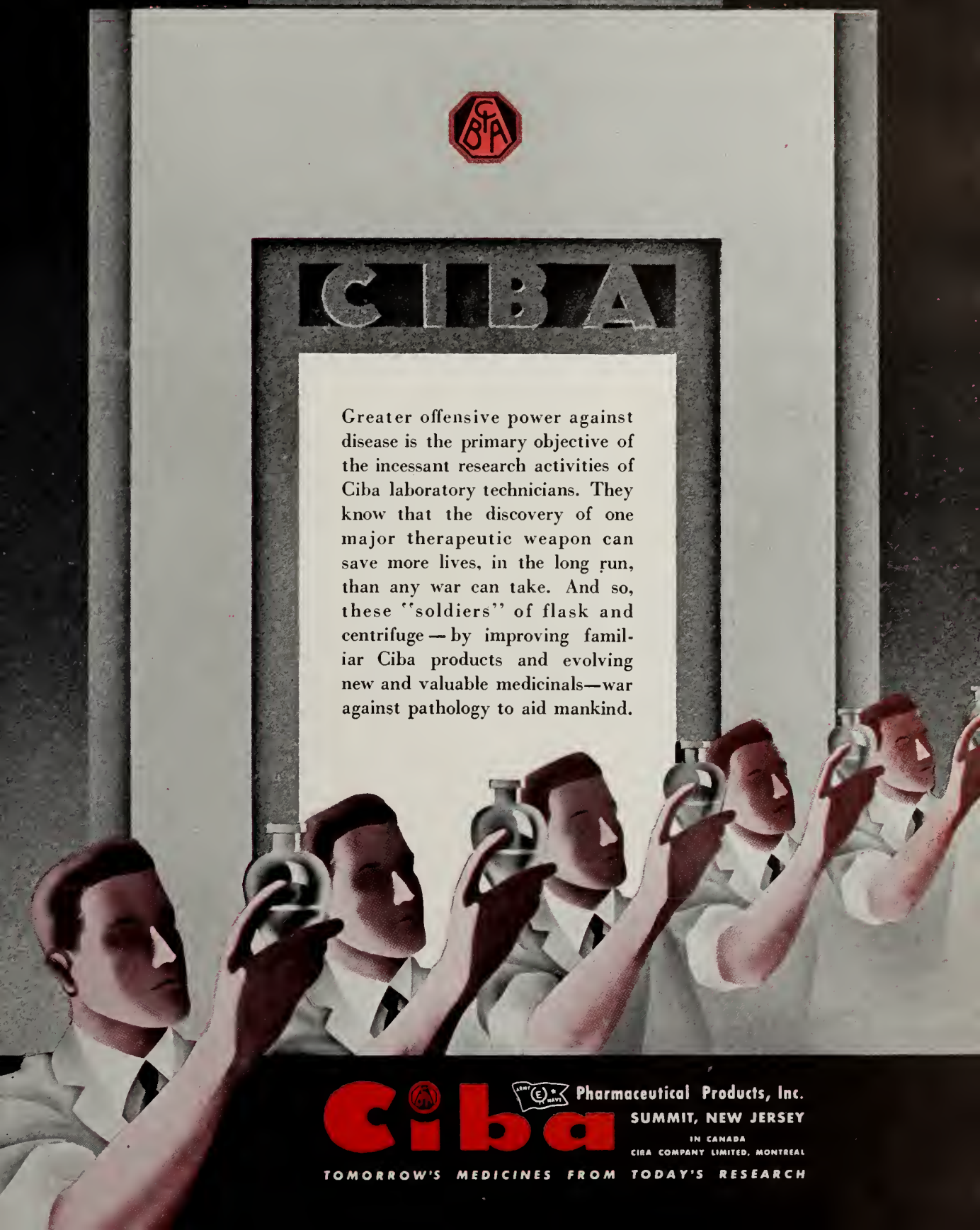
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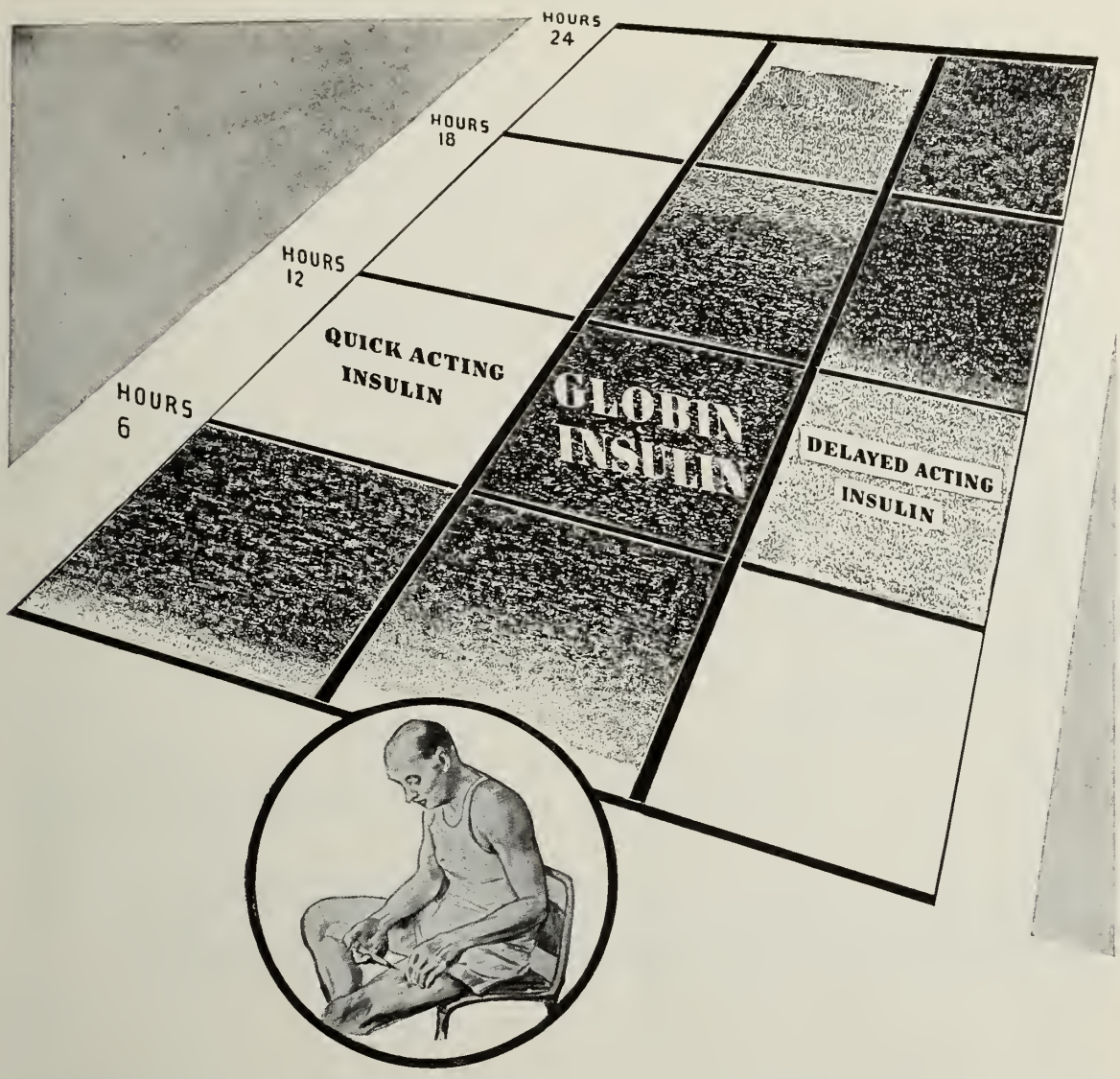


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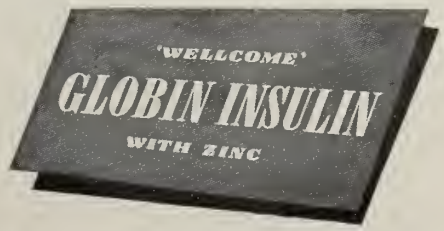
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MISSOURI MEDICAL SERVICE

Application for Registration as Participating Physician

I hereby express my desire to render services to Subscribing Members of the medical and surgical care plan of the Missouri Medical Service (hereinafter sometimes referred to as the Corporation) and I hereby apply to Missouri Medical Service for registration by it as a Participating Physician.

I am a Doctor of Medicine duly licensed to practice medicine as provided by the laws of the State of Missouri and I hereby agree to be bound by and observe all the By-Laws and all the rules and Regulations of the Missouri Medical Service as now or hereafter in force and to furnish all service and other necessary reports now or hereafter required by the Corporation.

I understand that the services to be rendered by the Participating Physician under the plan shall be limited to such medical and surgical services as are covered by the Corporation's agreement with each respective Subscriber. It is understood and agreed that the Corporation shall pay directly to the Participating Physician compensation for medical and surgical services as specified in the Subscriber's Certificate of Membership but only as resources of the Corporation make it possible. It is further understood and agreed that the amount of compensation which the Participating Physician shall be entitled to receive from the Corporation may be reduced, if, in the opinion of the Board of Trustees, such reduction is necessary based upon claims experience. Should such reduction become necessary, the Participating Physician agrees nevertheless to credit the Subscribing Member with the amounts as set forth in the Subscriber's Certificate of Membership.

The Participating Physician is privileged to charge his usual fees for services, and the amounts of reimbursement set forth in the Subscriber's Membership Certificate are not intended to indicate the value of such service. I understand that if in my judgment the financial circumstances of the patient are such that an additional charge would not be justified the amount of compensation specified in the Subscribing Member's Certificate will be accepted by me as payment in full for services rendered.

It is further understood and agreed that any rights or privileges acquired by me by virtue of this Application shall not be assigned except upon written approval of the Corporation; that my relationship with the Corporation as a Participating Physician may be terminated by either party by written notice to the other at least thirty days prior to the effective date of termination, but that such right of termination by the Corporation shall be exercised only by authority of its Board of Trustees. No such termination, however, shall affect any case then under care or treatment by the Participating Physician.

The Participating Physician hereby constitutes and appoints the Corporation the agent of the Participating Physician, as well as all other Participating Physicians who sign similar agreements with the Corporation, to make and enter into Membership Agreements with Subscribers; and it is hereby acknowledged that such agreements are not the agreements of the corporation as such but are the agreements of the Participating Physicians made by and through their said agent.

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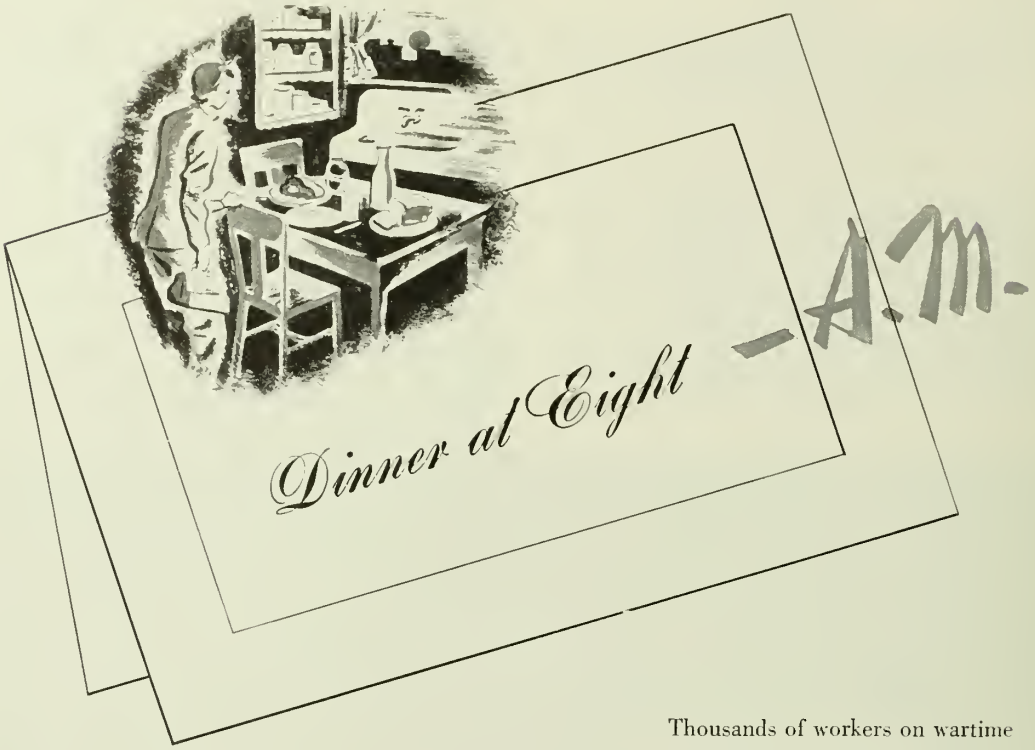




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THE HEART IN HYPERTENSION

DREW LUTEN, M.D.

ST. LOUIS

Until there is a better understanding of the causes of hypertension and of its exact relationship to arterial sclerosis, it will be impossible precisely to describe the changes produced by it alone upon the heart. In long-standing hypertension there is commonly an associated sclerosis of the coronary arteries as well as of the aorta. So far as this sclerosis may result from the hypertension, thus far its cardiac effects ultimately may be attributable to the hypertension itself. Coronary sclerosis, however, may occur with no associated hypertension and itself may produce important effects upon the heart. In many cases of hypertension with coronary disease, therefore, it may be impossible to separate precisely the effects of the one from the other. In many uncomplicated cases of coronary sclerosis, on the other hand, the effects of sclerosis upon the heart have been subjected to detailed study and are well known. In cases of sclerosis with associated hypertension and with no other complication, any lesions in addition to the sclerotic changes may fairly be assumed to result from the hypertension. Upon these bases, it may be said that, in general, hypertension tends to produce cardiac enlargement and that coronary disease per se has little such tendency. Both hypertension and coronary disease tend to impair ventricular function and thus to induce heart failure. In an individual case of hypertension or of coronary sclerosis, however, whether or not failure occurs appears to depend upon several factors, some of which often are not very clear.

In any discussion of heart failure, it is important to limit the term. Failure of the heart properly to perform its function of moving blood may be characterized by pain, or by diminution of its ability to dispose of the load, i. e., by congestion; in other words there may be anginal failure or congestive failure.

Presented at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

Congestive failure itself tends to induce cardiac enlargement; angina has no such direct effect. There is in fact a certain incompatibility between angina and congestive failure. It is now well known that the classical anginal syndrome depends on insufficiency of the coronary circulation and that the outstanding cause of the deficiency is coronary sclerosis. A great many patients with severe angina or even with coronary thrombosis show no enlargement of the heart, coronary sclerosis, as noted previously, having little tendency to cause enlargement. Congestive failure, on the other hand, as noted, regularly is associated with enlargement. Even in those cases of angina which subsequently exhibit congestive failure, the angina rather regularly disappears as failure supervenes, in many instances to return again if the general circulation improves. In summary it may be said that hypertension tends not only to produce cardiac enlargement directly, but also to induce *congestive* failure; that coronary disease, having little direct tendency to produce cardiac enlargement, is the conspicuous cause of *anginal* failure.

Coronary sclerosis, however, may also be an important factor in *congestive* failure. In a heart under the stress of hypertension or other circumstances which increases the load, impairment of coronary flow may cause the muscle more rapidly to suffer the ill effects of strain. Although it is true that in many cases of sclerosis even resulting in infarction, ventricular efficiency may be but little impaired, in many other instances ventricular failure with its characteristic dilatation and enlargement follows infarction. Just as hypertension increases the hazard in coronary sclerosis, coronary sclerosis adds to the danger in hypertension; and since they commonly occur together, separate appraisal of their ill effects, as noted, frequently is quite difficult.

Because of the variability in the degree of sclerosis and in the presence of other associated factors it is obvious that in different cases of hypertension great variation occurs in the cardiac effects. The demonstrable cardiac effects show no parallel to the height of blood pressure. This is

true both as to the presence or absence of failure as well as to the objective signs of cardiac involvement.

Physical Signs and Symptoms.—In hypertension there may be great cardiac enlargement even with a relatively low level of pressure; the enlargement may be negligible even with excessive elevation. Usually the aortic second sound is accentuated; it may be conspicuously so. The second sound at the apex may be relatively loud. In cases with dilatation of the aortic ring a diastolic aortic murmur is to be expected. At the apex the first sound may be booming in character; with dilatation involving the mitral ring, a blowing systolic murmur often transmitted to the axilla is characteristic. With considerable sclerosis of the ring, the murmur may be high pitched or musical. In later stages gallop rhythm is quite common.

It is to be kept in mind that the initial ill effects of hypertension upon the heart as well as those of coronary sclerosis usually are imposed particularly upon the left ventricle, and that the early evidences of failure are especially those involving that chamber. Rales at the lung bases may point to left ventricular insufficiency, along with dyspnea on exertion. Dyspnea at night and orthopnea occur characteristically in the more advanced stages. Evidences of right heart failure such as congestion of the liver and of other abdominal viscera with generalized anasarca may supervene. Various abnormalities of rhythm, especially extra systoles and auricular fibrillation, are common.

The Roentgen Ray Silhouette.—There may be little change from the normal. If the hypertension is of long standing there is usually some enlargement to the left, downward, and backward, with a rounding of the left ventricular curve.

Aortic sclerosis of some degree is almost a regular accompaniment of long standing hypertension. The aortic knob commonly is increased. On the right border of the silhouette, the depression marking the junction between the aortic and heart shadows appears to be lowered, the aortic shadow elevated. The aortic shadow as a whole characteristically is widened, more or less tortuous, and lengthened.

The Electrocardiogram.—Very little abnormality may be shown. As a rule, changes in the electrocardiogram occur somewhat earlier than in the roentgen ray film. A common early feature is left axis deviation, but it must be remembered that hypertension is by no means the only cause of this finding. High voltage is frequent. Lowering or inversion of the T wave in lead I is a characteristic finding in many cases with considerable myocardial change. Inversion of T in lead CF-IV is common.

Course.—Many patients with hypertension over a long period of time suffer few clinical evidences of cardiac involvement. Others with greater degrees of coronary disease, or because of other circumstances, exhibit more or less serious cardiac signs and symptoms at variable time intervals. In many cases the roentgen ray, electrocardiogram and physical findings may remain conspicuously abnormal for years without important symptoms, or with long intermission of serious symptoms.

Angina and other manifestations of coronary disease such as myocardial infarction must be treated more or less irrespectively of the hypertension. Congestive failure calls for appropriate treatment as in cases of other etiology. Since in both classes of failure, improvement greatly out of proportion to the severity of symptoms frequently occurs, good therapy obviously must include cheerful encouragement of the patient.

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RECENT ADVANCES IN THE MANAGEMENT OF HYPERTENSION

EDWARD MASSIE, M.D.

ST. LOUIS

When one considers the serious complications of hypertension and its extremely widespread character, it is easy to realize that there is more than adequate stimulus for search for improved treatment of this devastating disease. Yet up to the present time, a successful, practical and safe procedure for the routine treatment of essential hypertension has not been devised. On the other hand, the pathogenesis of arterial hypertension so far as the underlying physiologic and morphologic processes are concerned is fairly well established. The relation of certain types of arterial hypertension to renal ischemia has been demonstrated through experimentation.[1] Evidence is at hand to suggest that humoral agents of renal origin cause hypertension but intense investigation has not yet succeeded in revealing the true nature of the mechanism operating between renal ischemia and hypertension. Recently important evidence is presented suggesting that essential hypertension is a general symptom which may be caused not only by renal but also by vasomotor factors.[2] Spinal anesthesia which has little effect on the blood pressure of normal people may produce a profound and sudden fall in the blood pressure of patients with essential hypertension. When the local anesthetic action has worn off, the blood pressure of hypertensive patients returns in a few minutes to the usual level for those patients. This rapidity of action points to a nervous mechanism and strongly suggests that essential hypertension apparently may have a vasomotor cause of central nervous origin as well as possible humoral cause involving the kidneys.

Recently the subject of hypertension in military service has provoked a problem which is rapidly becoming of considerable importance to the civilian physician as more and more young men are re-

From the Department of Medicine, Washington University School of Medicine, St. Louis, Missouri.

Presented in a symposium on "Heart and Hypertension" at the 87th Annual Session of the Missouri State Medical Association, Kansas City, April 23, 24, 25, 1944.

jected for induction into the armed services because of borderline or actual hypertensive disease. There are many men who have become anxious over the present significance or future consequence of the finding of an elevated blood pressure by military medical examiners. Most of these men feel that they would not have been rejected or discharged from the armed services if they had not had a serious degree of hypertensive disease. Actually, the majority of such men would be classed more correctly as "vascular hyperreactors," and the question of when or whether they will have serious hypertensive disease is left unanswered at this time. A number of the candidates, however, with borderline hypertension have been accepted for active duty in the armed services. Instances in which this condition has led to the development of clinical symptoms and unfitness during active naval campaigns has recently been reported by Master.[3] At first thought, it would appear that the ideal solution to the problem of selection would be to reject all persons presenting hypertensive levels at any one reading. When statistical figures are considered, however, the incidence of hypertension in the general population would be so high as to prevent the attainment of the minimum goal required for the armed services. In addition, it is quite probable that a large number of men who are being rejected for this reason might not have significant or disabling disease for years.

Considering the implications of this difficult problem, Master suggests that a different approach be adopted. The question of fitness for active duty in the borderline cases is not so much dependent on the height and variability of the blood pressure as on the absence or presence of complications of hypertension. An uncomplicated mild hypertension is compatible with a high degree of physical activity and need not be a cause for rejection. A complete cardiovascular examination including a roentgenogram of the chest, electrocardiograms, exercise tests, examination of the retinal vessels and renal function studies are necessary in order to determine the presence of cardiac enlargement, myocardial damage, coronary disease, arteriolar lesions and renal insufficiency. On these criteria and not on blood pressure measurements alone should the physician base his judgment as to the suitability of candidates for military service, or for analogous activities in civilian life.

GENERAL MEASURES

The true refractory nature of hypertension to treatment is confirmed by the large number of medical and surgical technics which continue to appear in the literature. Any disease which can be controlled by appropriate therapy, characteristically does not require such a wide variety of therapeutic measures as are now proposed for hypertension, not only in the advertising appeals of manufacturers, but also in the scientific literature. It is well to state at this point that the belief, which still persists in some quarters, that it is inadvisable to lower blood pressure in the presence of essential hypertension has no foundation in fact. In uncomplicated hypertension, vital functions continue normally when blood pressure is reduced, and not only is the reduction of blood pressure in itself not harmful, but it frequently is highly desirable. There are certain therapeutic measures which are accepted universally and which always must be advised before consideration of any more specific steps. Proper rest and reduction of nervous stresses and strains are always indicated as are frequent vacations and the acquiring of a calm philosophic outlook on life. Individuals who are overweight should reduce but aside from the reduction diet there is little evidence that any special food, either by its inclusion or exclusion from the diet, will influence blood pressure. Restriction of moderate use of alcohol and coffee is not imperative unless their use results in abnormal stimulation. Smoking may increase the blood pressure of patients who have hypertension, and if this can be demonstrated by having the patient smoke after his blood pressure has reached a basal value, it is advisable to consider sharp restriction or complete elimination of the habit.

There is a great deal of legitimate skepticism concerning the value of the medical treatment of hypertension. One drug after another has been proposed and many of them have been reported as giving complete or partial symptomatic relief with or without a more or less marked reduction in blood pressure. Experience has shown, however, that practically all these medications exert no specific benefit. Vasodilators regardless of the variety are not effective. Sedatives are universally used and are indicated to help bring about nervous relaxation during the daytime and adequate sleep at night.

Thiocyanate Therapy.—At the present time, the most useful of the so-called specific remedies for the lowering of blood pressure and the relief of symptoms in the hypertensive patient is sodium or potassium thiocyanate (sulfocyanate). It should be stated, however, that symptoms associated with essential hypertension may be relieved by mental suggestion inherent in any seriously or enthusiastically prescribed method of treatment.[4] In an investigation of the effect of thiocyanate several years ago, the author[5, 6] attempted to eliminate these psychotherapeutic effects as completely as possible. During an initial control period of three months without specific treatment of any kind, a number of subjects known to have hypertension from previous observation were closely studied to establish the usual levels of the blood pressure and to determine the ordinary complaints. Under similar conditions of observation and without any attitude of suggestion or enthusiasm, there followed in succession a period of therapy with thiocyanate in a disguising vehicle and a second control period during which the patients believed they were still

under active treatment although they were given only the vehicle and not the active drug. In the majority of cases, during the period of active therapy, there was an appreciable drop in blood pressure with an average fall of systolic pressures ranging in the various patients from 66 to 21 mm. and an average fall in diastolic pressures varying from 33 to 8 mm. In contrast to these average values, the maximum fall in blood pressures of from 80 to 37 mm. systolic and 46 to 18 mm. diastolic was more striking. It seems particularly impressive that in the second control period when the active drug was surreptitiously omitted and only the vehicle was given, the original complaints recurred and blood pressures gradually rose to approximate those of the initial control period. The effect of thiocyanate therapy on blood pressure is well illustrated in figure 1.

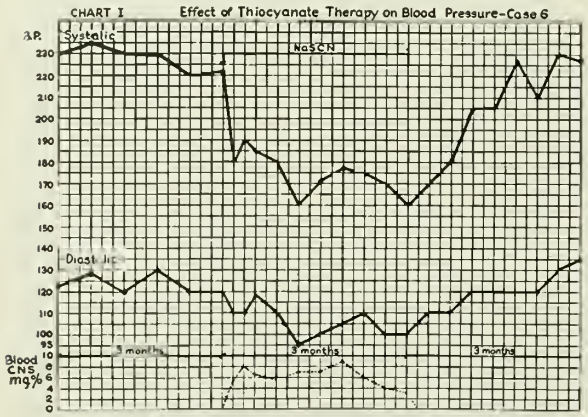


Fig. 1. Effect of thiocyanate therapy on blood pressure. The first interval of three months represents the initial control period, when no medication or treatment was given. The second three months shows the results obtained during the therapeutic period when sodium thiocyanate was given in a flavored vehicle. The final three months represents the second control period during which the vehicle alone was given, the active medication having been omitted without the patient's knowledge.

The principal symptoms attributable to hypertension, such as persistent and troublesome headache, marked nervousness and mild vertigo, either decreased appreciably or disappeared entirely under treatment. Many of the patients felt that they were definitely improved while receiving thiocyanate. The symptom most affected by the drug was headache or a sense of cephalic fulness. In most cases this complaint was either banished or occurred with less frequency or intensity. A striking sedative effect was also experienced by some of the patients and vertigo and nervousness were frequently well controlled. Insomnia was often relieved and unusual activity, excitement and emotional upsets were well borne. Occasionally the cardiac symptoms of dyspnea and heart consciousness were improved. Subsequent study of a large number of cases in the last several years for the most part has substantiated the results of the previous investigation. It appears that over half of the patients so treated have a good objective and subjective response to the drug. Other investigators have obtained similar results.

Thiocyanate may be used for ambulatory patients and can be administered either as the sodium or the potassium salt since the effective constituent is the cyanate ion. It is best given as a 5 per cent solution in various vehicles of which aromatic elixir and elixir phenobarbital are quite satisfactory. In this dilution, 4 cc. contains the unit dose of 0.2 gram of the drug. The routine used to initiate thiocyanate treatment is to give three daily doses of 0.2 gram for the first five or six days and then twice daily for a similar period. In each instance, initial and maintenance doses must be determined according to the level of blood cyanate and all doses adjusted from time to time as considered necessary. The usual maintenance dosage ranges from 0.2 to 0.4 gram daily. Usually, for proper control, the patient must be seen at least every two to three weeks, although a monthly interval between appointments may be satisfactory in those in whom previous experience has revealed a very constant blood level. At each visit the patient should be questioned carefully in regard to the occurrence of any toxic symptoms. A routine urine examination and blood nonprotein nitrogen determination on the average of once monthly is desirable since many of the patients have coincidental renal disease. The optimal blood level is from 8 to 12 mg. per cent, for at this range patients experience the most beneficial therapeutic effects with the fewest difficulties. It is a good rule to maintain the blood-cyanate concentration at the lowest possible level consistent with a good therapeutic result. The usual medications may be given along with thiocyanate without fear of incompatibility, although if sulfonamides are indicated it is best to discontinue thiocyanate temporarily.

Minor toxic symptoms often occur during the first two to four weeks of therapy and consist principally of weakness, aches in the legs, slight epigastric distress, nausea, mild dermatitis and occasional decreased libido. Rarely, marked nervousness may be manifested. The most frequently encountered symptom, however, is the sensation of weakness and excessive fatigue. Usually it is slight or moderate and does not interfere with treatment. More often it occurs early and disappears after the first few weeks of therapy. Infrequently it is severe enough to necessitate stopping therapy and as a rule in such cases the blood-cyanate level will have been maintained at a high range in an effort to reduce an unusually high and resistant blood pressure. More serious complications mentioned in the literature consist of such difficulties as angina pectoris,[5] exfoliative dermatitis,[7, 8] congestive heart failure, cerebral thrombosis and psychosis.[9] In my own experience, except for the occurrence of angina pectoris, these more serious occurrences have not been encountered. Usually they can be avoided or anticipated by close scrutiny and control of the

patient on his frequent visits, but since some of the incidents tend to occur in the course of the fundamental disease, it is not always easy to identify the exact cause of the complication. A simple dermatitis during therapy may be a forerunner of an exfoliative dermatitis and thus deserves close attention. The occurrence of angina pectoris is infrequent and in my experience is coincident with a marked fall in blood pressure, usually in an elderly patient with moderate to marked arteriosclerosis. In such cases the attacks of precordial pain tend to disappear when the blood cyanate level is allowed to fall and the blood pressure permitted to rise to a more moderate range. It seems not unlikely that angina pectoris during thiocyanate administration occurs as a result of excessive lowering of blood pressure and subsequent circulatory insufficiency. In cases of prolonged thiocyanate administration, loss of weight and a moderate anemia have been said to occur as has the occasional development of a cabbage goiter.

Thiocyanate therapy, generally speaking, should be restricted to cases of uncomplicated vascular hypertension in patients not usually more than 60 years of age and without marked arteriosclerosis. It is apparent that most of the severe complications with the medication occur in those who do not conform to this restriction. Patients should have satisfactory cardiac function or at least should give no evidence of angina pectoris or cardiac decompensation. Renal studies should show fairly normal function; at least the blood nonprotein nitrogen should be within normal limits. Albuminuria is no contraindication. Preferably there should be no history or physical signs of a cerebral vascular accident in the recent past. In addition, the patient must be cooperative and sufficiently intelligent to be cognizant of early toxic symptoms.

Unilateral Nephrectomy.—A new approach to the treatment of hypertension in selected cases was gained as a result of Goldblatt's demonstration of the production of hypertension by clamping of the renal arteries, and the publication of several excellent papers pointing out the role of pyelonephritis in the pathogenesis of hypertension.[10, 11] Many articles have appeared in the literature concerning the more recent form of treatment of hypertension by unilateral nephrectomy. Actually, hypertension in unilateral renal disease is less common than generally is thought. Braasch, Walters and Hammer[12] observed hypertension in only 18.4 per cent of 1,684 patients who were subjected to renal surgical procedures of all types. Judging from the cases reported in the literature the most frequent pathologic condition found in the kidneys removed for hypertension is chronic pyelonephritis.

In any case in which unilateral renal disease is suspected and in which nephrectomy is contemplated, it is of the utmost importance to appraise carefully the functional status of both kidneys. This is especially true if hypertension exists, for the removal of one kidney, if it retains any function at all, will place an increased load on the remaining organ which, if its function is but slightly impaired, will result in relative or functional ischemia of that organ. The result is that there will be no beneficial change in the blood pressure. The diseased kidney should be functionless or practically so before its removal can be expected to alter the blood pressure significantly. The opposite kidney, on the other hand, must be functioning normally, so far as its function can be measured by means of pyelography and by recognized clinical tests of renal function. Careful bacteriologic study of the urine from the normal kidney must be made before one can be certain of the absence of infection. The evaluation of renal function, unfortunately, is at times extremely difficult, and this makes the problem all the more complicated. The following criteria suggested by Sensenbach[13] for the selection of patients with hypertension for whom nephrectomy is indicated, should be carefully met if success is likely to be attained.

1. The diseased kidney should be functionless or its function greatly diminished.
2. The opposite kidney should function normally.
3. The hypertension should be of short duration.
4. Other factors being equal, the younger the patient, the greater the chances of favorable results following nephrectomy.

Renal Extracts.—The hope of successful therapy by renal extracts has not materialized. The announcement of this advance in treatment was made by Grollman, Williams and Harrison[14] and by Page.[15] The possibility of developing this therapeutic method for reducing high blood pressure rests upon the discovery that in the kidneys of animals and man a substance called renin is produced. This substance, combining in the blood stream with a chemical designated as an activator, produces a third substance which has pressor action and has been named angiotonin. The kidney also produces a substance which apparently counteracts angiotonin, lowering blood pressure in hypertensive animals. When a kidney becomes diseased, however, its secretion of renin is believed to overbalance its secretion of this inhibitor of hypertension. As a consequence, the excess of renin leads to the production of an excessive amount of angiotonin which subsequently raises blood pressure. This observation led to the preparation of kidney extracts which appear to produce their antipressor action at least partly through their ability to neutralize angiotonin. These extracts have held considerable promise but a successful result has not yet been realized. Page[15] reported the use of kidney extracts in a series of thirty-seven patients, twenty-four of whom had malignant hypertension and thirteen essential hypertension. Nine of the former died, six in uremia and three of cerebral hemorrhage, whereas, none of the cases of essential hypertension resulted in a fatality. The most striking changes following treatment were reversal of eyeground abnormalities with improvement in vision, increase

in cardiac output, and decrease in diastolic blood pressure. Unfortunately, because of occasional shock-like reactions, the lack of standard chemical procedures to yield a uniform product of high potency and the great difficulty of their preparation, renal extracts cannot at present be regarded as a practical means of therapy. Although in some cases the objective signs and subjective symptoms have been improved, in general, the results with the kidney extracts appear to be inconclusive and this form of therapy must still be considered as an experiment of great interest, but one which must be pursued much further before it can be proposed as a treatment in the true sense of the word.

Tyrosinase.—Following the suggestions that hypertension might be due to a pressor amine released by ischemic kidneys, Schroeder and Adams[16] investigated the effect of a specific oxidative enzyme capable of altering pressor amines. The enzyme, tyrosinase, isolated from mushrooms, was found to lower consistently the blood pressure of hypertensive rats and dogs when given intravenously. Subsequently, tyrosinase was administered to seventeen patients suffering from arterial hypertension by daily subcutaneous injections for periods of from three to four weeks.[17] Of fourteen cases who previously had systolic pressures above 200 and diastolic above 120 mm., significant decreases of pressure were obtained in thirteen. In addition, definite symptomatic improvement occurred. When tyrosinase administration was discontinued, the blood pressure soon returned to its previous level, but symptomatic improvement continued to last for several weeks or months. The injections were painful and caused frequent reactions. That the blood pressure lowering effect of tyrosinase is due to enzymatic activity is questionable in view of the more recent observations that heat inactivated tyrosinase preparations are as effective as active ones in reducing blood pressures in patients with hypertension.[18] It has been suggested that the effects and reactions obtained with tyrosinase resemble those which may be expected after injection of a nonspecific protein material, and it seems possible that such effects and the therapeutic results so far observed are related closely. Further investigation with this type of therapy is warranted, but it must be considered only experimental at present.

Fish Oils.—Vitamin A in large doses has been recommended in the treatment of hypertension[19] but more careful observations have shown that it is relatively inert.[20] Grollman and Harrison have demonstrated that the agent responsible for the observed reduction in blood pressure in their reports is not derived from vitamin A but resides in some other constituent of fish oils which happens to be concentrated in commercial preparations of vitamin A. Preliminary studies demonstrate surprising similarities between fish oils and kidney extracts as regards their general physical and chemical properties. They are almost identical insofar as their effect on the blood pressure is concerned. The relatively high potency and ready availability of crude fish oils render these more satisfactory than kidney as a source of the active principle effective in hypertension. As yet, there is no clinical experience with the use of fish oils, but since the antihypertensive substance contained in them is effective by mouth and apparently in small amounts, further work leading to its production and identification is highly desirable and should be reported in the near future.

SURGICAL TREATMENT OF HYPERTENSION

Sympathectomy by one method or another has been performed in the last eighteen years in about 3,000 cases. The literature, however, indicates widely varying opinions concerning the effects of different operations on the levels of blood pressure and the course of the disease. The technics more commonly used include the supradiaphragmatic bilateral splanchnicectomy described by Peet,[21] the subdiaphragmatic splanchnicectomy with lumbar ganglionectomy described by Allen and Adson[22] who in some cases also added a partial adrenalectomy, and Smithwick's[23] operation which consists of a two stage bilateral transdiaphragmatic procedure in which are removed the entire great splanchnic nerves, their aortic branches and the sympathetic ganglions, the ninth, tenth, eleventh and twelfth dorsal ganglions, the first lumbar and occasionally the second lumbar ganglions.

From the point of view of the internist, the results up to the present have not been very encouraging and seemed to suggest that this radical form of therapy should still be considered in the experimental stage. In a comparative study by Flaxman[24] of the mortality statistics of 244 hypertensive patients observed by himself and treated only medically, with the mortality of 350 hypertensive patients treated surgically with supradiaphragmatic splanchnicectomy by Peet and his coworkers, very little difference was noted between the two groups. Flaxman concluded that it is doubtful whether or not so-called specific surgery alters the course and prognosis in cases of hypertension, including those with malignant hypertension. In a report from the Johns Hopkins Hospital on the subject of sympathectomy in essential hypertension,[25] of twelve patients who had been selected primarily because of their incapacitating symptoms, only five had a lowering of arterial pressure which lasted for from six to eighteen months while nine noted relief from symptoms referable to hypertension. In only two patients did the abnormal findings in the heart and eyegrounds regress during the period of lowered arterial pressure. These authors felt that sufficient time had not elapsed to state with certainty that the course of the disease was altered by operative intervention. The surgical procedures used in this series included both the supradiaphragmatic and the infradiaphragmatic types of splanchnicectomy.

Recently, however, Ayman and Goldshine[26] have suggested that surgical therapy in hypertension may be quite effective judging from a carefully handled investigation in which they reported a late follow-up study of thirteen patients who had undergone a variety of sympathectomy denervations and who had been subjected to unusually detailed controlled study which, in some cases, persisted over a three to five year period after operation. They felt that their data pointed fairly strongly to the conclusion that sympathectomy regardless of its rationale is one of the most successful forms of therapy in essential hypertension in producing a marked nontoxic lowering of the blood pressure. They specifically state that no medical therapy has ever equaled the results obtained in five of the thirteen cases. They also contend that no one can point to a single well controlled patient in which medical treatment has brought the size of the heart, the electrocardiogram and the blood pressure back to normal as has been accomplished by sympathectomy in some of the cases of their series. In addition, the symptoms improve and the patient's incapacity becomes replaced by normal activity lasting at least as long as five years. Eight of their cases responded successfully. So-called Group IV patients with extensive and rapidly progressive arteriolar disease persistently did not respond. Success in general was more constant in those patients subjected to extensive denervation. The transdiaphragmatic type of splanchnicectomy with dorsolumbar ganglionectomy performed by Smithwick was the most effective type of operation. Judging from these results it would appear that therapy by sympathectomy, preferably by the Smithwick procedure, should be considered strongly in patients with essential hypertension in whom progressive elevation of blood pressure is found after long and careful study or in whom evidence of beginning vascular damage is demonstrated.

SUMMARY

The treatment of essential hypertension remains one of the unsatisfactory chapters in therapeutics. The fundamental causes of essential hypertension are for the most part still obscure and one can neither remove or successfully combat them. In many instances no methods at the physician's disposal will serve to lower the blood pressure for any significant length of time. In other instances the blood pressure can be reduced for a longer period with beneficial effect. The treatment is still symptomatic rather than ideally etiologic. Yet one cannot assume too pessimistic an attitude for there can be no doubt that in many cases much can be done for the patient in controlling the manifestations of the disease and in combating its complications.

There is as yet no specific treatment in essential hypertension. Thiocyanate therapy continues to enjoy considerable favor despite occasional untoward effects. Further experience with extracts of kidney tissue has yielded somewhat disappointing results. A substance contained in fish oils appears to have an antihypertensive effect and further study in this field is indicated. The use of tyrosinase, an enzyme specific in altering phenolic compounds, has been shown to lower blood pressure but apparently not by its enzymatic action; continued investigation with this material is warranted. In selected cases, unilateral nephrectomy results in an occasional dramatic response. The most consistently good results appear to have been obtained following surgical therapy in properly selected cases with use of the newer technic of two stage bilateral transdiaphragmatic splanchnicectomy and sympathetic ganglionectomy described by Smithwick.

University Club Building.

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PSYCHOGENIC FACTOR IN HYPERTENSION

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Medicine today offers the student many thrills for research study in the field of hypertension. Slowly the mysteries of the hypertensive states are being unraveled under one's very eyes. One discovery leads to another until now, medicine is at the threshold of solving the problems of a disease so prevalent that it heads the list of the mortality table.

True it is that more discoveries will be made and eventually a substance will be found which will reduce blood pressure effectively but, still, the complete problem will not be solved. For one is dealing with human beings—each one a distinct entity—each one experiencing emotional stresses and strains which at times shake the very roots of his foundation. Here, then, is a disease which when studied and treated must take into consideration the individual. I wonder if old Dr. Parry of Bath had hypertension in mind when he uttered the following remark over a century ago, "It is much more important to know what sort of a patient has a disease than what sort of a disease the patient has."

The results of the research work of the last decade or so pretty well center thoughts on the humoral pressor activities of the kidney. Fearful of the fact that one might center all his thoughts on the renal system and exclude all other systems, and fearful that such a concept might relegate the nervous system to complete oblivion, I shall, therefore, describe the background of the hypertensive individual; with such a background fully fixed in mind, I am sure that the physician will not shunt out the nervous system when the problem of hypertension is considered.

It is no new thought that heredity plays an important role in the great majority of diseases. This fact is especially true in a consideration of hypertension. Long before the physician had the means of measuring blood pressure accurately, experienced clinicians noted that heredity was an important factor in the hypertension picture. Morgagni, in 1769, felt that heredity was a great factor in his recorded apoplexy patients. Too, Gull and Sutton, in 1872, expressed the opinion that heredity was an important factor in his chronic interstitial nephritic patients. Janeway, in 1916, expressed himself most pointedly when he declared that hypertensive arterial disease was the disease in which heredity played the largest role.

Since then many clinicians of note have added their experiences in the statistical table to show beyond a doubt that a greater percentage of hypertension was found among members of families in which there existed a hypertensive diathesis. I dare say, that all physicians who have practiced twenty-five years or more have been impressed with the high frequency of hypertension in so-called hypertensive families.

In this discussion one cannot relegate a back seat to the type of individual who develops increased arterial tension. Studying the early life history of these patients, one notes a frequency of interesting phenomena which are caused by vasomotor instability such as blushing; flushing; cold, sweaty, cyanotic hands; fainting and dizzy spells. There is present frequent epistaxis, abnormal menstrual flow and migraine. The individual is high strung and sensitive and reacts most markedly to an insignificant stimulus. As this candidate for hypertension matures one finds an ambitious, meticulous and exacting person—a hard taskmaster with the ability to accomplish much in a short time. It is no wonder then, when one considers such a personality, that one must feel that the psychogenic factor plays an important role in the development and treatment of hypertension.

It is common practice today to take into consideration the emotional element when recording blood pressure readings. Most patients are on tension when they visit their physicians and, for that reason, it is most important to put them at ease, both mentally and physically, when readings are taken. Usually the first one or two readings are higher than subsequent ones. I am satisfied that routine blood pressure readings reach higher values now than they ever did before. I wonder if other physicians have noticed an increase of blood pressure in patients the last year or so. I attribute this apparent rise in blood pressure readings to the increased tempo of daily lives. Even youngsters feel this acceleration and evidently react with an increased blood pressure reading.

One is so willing to ascribe all symptoms in a hypertensive individual to increased blood pressure. How often does one see individuals with high pressure come into the office for a physical check-up, without any symptoms, who are carrying on their routine activity with ease? I should say that such an occurrence is frequent. Too, it is not uncommon for such an individual, symptomless and active, to be told by an insurance examiner that he has high blood pressure. From then on, that patient is a sick man. How can one account for such a reaction? I have a patient in the hospital now, who felt perfectly well until she went to a surgeon to have a wen removed. This surgeon

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was very scientific and took her blood pressure. He told her he could not remove her wen because her blood pressure was high. From then on she became a very sick woman and had to be hospitalized. Truly, her symptoms are now psychoneurotic in nature.

Thus, the psychogenic factor may play a main or a primary role in the development of symptoms. Interesting it is that the early symptoms noted in so-called essential hypertension may be mistaken for the manifestations found in functional nervous disorders. As in neurasthenia, the common early symptoms of so-called essential hypertension are headache, dizziness, weakness, exhaustion, irritability and nervousness. Too, in both of these disorders, the symptoms are experienced in all parts of the body.

Studies have been carried out to show these early symptoms closely resemble the common symptoms found in psychoneuroses, as disease of psychogenic origin. In the psychoneurotic, the symptoms are the physical expression of an emotional strain caused by the faulty adaptation to the difficulties of life in other words, an emotional maladjustment expressed physically. A comparison of symptoms in both so-called essential hypertension and psychoneuroses brings to light a close similarity in the character and duration of symptoms as well as the frequency, variety and widespread distribution of these symptoms. A close similarity is further observed when a detailed history of emotional experiences is recorded. In both there are great emotional conflicts arising from the ordinary activities of life; trivial incidents provoke marked reactions.

Another disorder so frequently seen today, which demands intelligent handling, is cardiac neuroses. Here, the symptoms may parallel closely those early symptoms of so-called essential hypertension. Here, too, the patient is emotionally unstable; here, too, is present a long history of poor adjustment to the incidents of daily life. In other words, the disorders, neurasthenia, psychoneuroses, cardiac neuroses and so-called essential hypertension, all have a common denominator, the psychogenic factor.

Then, too, can one ignore the psychogenic influence in the medical management of so-called essential hypertension? In the light of the symptomatology and the background of the hypertensive individual, it is no longer adequate therapy to say to such an individual, "Go home and take it easy," or "Oh, you are all right, forget it." One must study the early life of the patient; one must study his present status. Then and then only can one scientifically advise the patient in regard to his maladjustments and environmental difficulties. A removal or at least a readjustment of these difficulties must be sought to help the hypertensive patient. In the final analysis, the most essential factors in the treatment of this disorder are the three Rs—relaxation, reassurance and readjustment.

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A SIMPLE VIEW OF THE HYPERTENSION QUESTION

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My views of hypertension have become so simple in recent years that I am somewhat hesitant to emphasize them too much. However, at the present time I think conservatism as regards etiology and management is justified by the lack of real crystallization of general opinion on the fundamental concepts of hypertension.

I do think that there are a few points in the etiology of hypertension that are reasonably well established. Take, for example, certain infections. Some years ago Dr. Thayer examined a number of patients who had recovered from typhoid fever in Baltimore. He found that these individuals were running higher blood pressure levels than those of normal controls. This same observer had occasion at another time to examine the heart of a man who had died of typhoid fever. Near the mouth of a coronary artery was a localized plaque of arteritis. Such a plaque might have proved an ideal site for coronary thrombosis had the patient lived to later years. So here one has the same observer finding arterial hypertension following typhoid fever, and also reporting a case with the type of arteritis that follows certain infectious diseases. Some years ago Levine, of Boston, and his coworkers, pointed out that patients with mitral stenosis are very apt, in middle life, to develop an acquired hypertension. One may theorize about the cause of this complication of rheumatic heart disease, but there is no questioning the fact that rheumatic heart disease in middle life is followed in probably from 50 to 55 per cent of cases by the development of hypertension. Then Fishberg, of New York, made an interesting observation relating to combined rheumatic heart disease and hypertension. He found that patients who came to autopsy with mitral stenosis and hypertension showed granular kidneys. Cases of mitral stenosis without hypertension failed to show granular kidneys. So there is a vast overlapping, without much question, of cases of rheumatic heart disease and hypertension. It seems to me that, *a priori*, it raises a fair question as to whether or not there might be a common etiologic factor underlying these two conditions.

I think I remember talking some years ago at the Kansas City Southwest Clinical Society on the possible relation between certain streptococcic infections, particularly of the tonsils, and hypertension. At that time I analyzed a study I had made of patients with hypertension and found, in many cases, repeated tonsil infections. I should like to have included sinusitis, but the sinuses are a rather difficult matter about which to get information; however, the tonsils are open to direct inspection

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by the examiner. One usually can get a fairly good history of repeated attacks of tonsillitis and can determine whether or not tonsillectomy has been considered necessary. I drew up an analysis of cases of hypertension with tonsillitis and those without, and controlled the hypertension cases by taking large numbers of patients with cancer, syphilis, et cetera. As a result, I found that tonsillar infections were definitely higher in the hypertension group than in the group of control cases. I do not think anybody seriously questions the relationship between tonsillitis and rheumatic fever; rather as a sort of double control, the histories of patients suffering from rheumatic fever were analyzed for repeated previous attacks of tonsillitis or quinsy, for tonsillectomy and for tonsil infection at the time of examination. Naturally, it was found that a high proportion of rheumatic fever cases gave evidence of past or present tonsillitis. As a result of these analyses it was found that the incidence of tonsillar infection, in the hypertension cases, was about midway between the incidence found in the controls and that found in the frankly rheumatic individuals. That raised a definite suggestion of a possible connection between repeated streptococcic infections and the etiology of hypertension.

Since that discussion of several years ago I have analyzed and reported the incidence of repeated tonsillar infections or rheumatic fever, or both, in something like one hundred patients with coronary occlusion. I found that, here again, the incidence of repeated attacks of tonsillitis and rheumatic fever was definitely higher than it was in normal controls. And so, step by step, I arrive at a sort of working hypothesis of my own which I will show, for what it is worth, illustrating the relation between certain infections and hypertension and coronary artery disease, and, in fact, between such infections and the entire cardiovascular apparatus.

This is the same story as worked out through case analyses. The various etiologic factors immediately associated with the so-called rheumatic state are tonsillitis, rheumatic fever, chorea. I do not think there is much doubt but that these diseases are accepted generally now as etiologic precursors of the rheumatic state. One can proceed from those causative agents in several directions. One can acquire rheumatic heart disease and end up with hypertension, as shown by many workers. I believe that one can start with the same etiologic agents and pass directly into the hypertensive state without the acquisition of demonstrable rheumatic heart disease. Going in the other direction, one arrives at coronary sclerosis either by the route of frank rheumatic heart disease, or directly from certain repeated infections to the acquisition of coronary sclerosis. I have not time to bring up cases of hypertension to support this point but I think I have seen enough cases and analyzed a large enough number of case histories with sufficient fairness to suggest that all these inter-relationships may exist. As Dr. Luten has suggested, there is no doubt but that there is a very considerable relationship between these two conditions, hypertension and coronary sclerosis. All know that a majority of patients who develop frank coronary occlusion have had more or less hypertension. A considerable number do not, yet there is a great overlapping between the hypertensive state and the state of coronary sclerosis. What I am trying to bring out here, and what I believe to be true, is that when one has hypertension, when one has coronary sclerosis, when one has rheumatic heart disease, he has a more or less generalized disease of the cardiovascular system. He does not have granular kidneys and nothing else; he does not have coronary sclerosis and nothing else. From the overlapping of these states, it seems to me arises the fair question, whether or not some common etiologic agent is at work in the background of patients with a wide variety of cardiovascular disorders.

A chest film of a patient with chronic hypertension and cardiovascular disease showed marked enlargement of the heart to the left, slight to the right, a uniform dilatation of the aorta and the signs of congestive failure in the lungs. In failure of this sort one customarily is not dealing merely with the effect of hypertension upon the heart, but with the effect of hypertension upon a heart that is undermined by coronary sclerosis; there is so much overlapping between the hypertensive state and the state of coronary sclerosis that it is not uncommon to find the two conditions in the same patient.

By comparison I want to show another case, a patient who has had hypertension for twenty-three years. This patient is a man, aged 23, who recently was in our hospital. He has coarctation of the aorta, with blood pressure in the arms averaging 170/100. He had no particular symptoms, but hypertension was recognized and he was sent in for diagnosis. Here is a man who has coarctation of the aorta, he has all the signs, with hypertension in arms and hypotension in legs and abdomen. In other words, one knows that his heart has been exposed to hypertension for twenty-three years, and yet its silhouette is good. It would be difficult to find a more capable heart in a young man. If anything, it is somewhat smaller than the average. He has a very typical sign of coarctation, which is a tube-shaped shadow in the mediastinum, which the French call "chimney" shadow. This case illustrates what I am convinced is a fact, and that is that ordinary hypertension is merely a part of the picture of hypertensive cardiovascular disease and that, so far as the pressure, pure and simple, is concerned, it has no important effect upon the heart unless there is some other factor embarrassing the heart and complicating the picture. One does find patients with coarctation of the aorta with large hearts and, occasionally, the heart fails. But in those cases one finds there is a complicating aortic insufficiency. Pressure in the root of the aorta over a period of

years may cause changes in the aortic valves that lead to aortic insufficiency; when this occurs, one will find enlargement of the heart that may go on to failure.

A few years ago I assembled a small group of cases of calcific aortic stenosis from my private practice in which the diagnosis had been proved either by roentgen ray or necropsy. I drew up the material to bring out certain points about one type of calcific aortic stenosis and, in connection with this discussion this morning, I want to emphasize particularly the low blood pressure found in this group of cases. All but one had some degree of cardiac hypertrophy. The pulse in general tended to be reduced in size, the blood pressure low, the systolic being in most cases about 100 mm., in one case as low as 90 mm. In every case in this particular group there was an associated aortic insufficiency, although that is not always so. Other findings are a little beside the point but I think it might be of interest to point out that, in the presence of calcific aortic stenosis, hypertension, which in itself cannot be considered a good thing, in this particular condition is a rather favorable prognostic finding.

What I have been trying to say, very simply, is that hypertension itself, pure and simple, is not such a bad thing. Patients with coarctation of the aorta live for years and years without any serious effect on the heart resulting from the associated hypertension. But the average individual with hypertension has a disease that involves more or less the entire cardiovascular apparatus; just what form the eventual disability resulting from the condition will take is very difficult to prophesy. I have never been able to predict, in a given case, whether the patient would die in the end from cerebral apoplexy or heart failure or uremia. It is safe to say only that, in most cases, hypertension is a symptom of a generalized cardiovascular-renal disorder.

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CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M. D., and ROBERT A. MOORE, M. D., Editors

CASE 59

PRESENTATION OF CASE

The patient was a 55 year old jeweler who entered Barnes Hospital for the first time on February 15 on the surgical service and was discharged March 18, 1944.

Chief Complaints.—Pain over a mass in the upper abdomen, draining wound of the abdomen and loss of weight.

Past History.—There is no record of any significant disease prior to the present illness. The patient had had a hacking cough for many years but no pain in the chest, night sweats or bloody sputum. Hemorrhoids had been present for fifteen years. The patient had been a watchmaker for a long time. He spent long hours at work over a table and protected his abdomen with a specially constructed belt. He was in good financial circumstances and his habits indicated no excesses.

Present Illness.—About three years previous to admission, the patient first noted pain in the upper abdomen. It was not related to meals and occurred particularly when stooped over his workbench. Three and one half months previous to admission, he noted an irregular mass at the site of the abdominal pain. A hernia was diagnosed and an operation performed but the diagnosis at operation was uncertain. Drains were left in place. The patient made an uneventful recovery with the exception that the wound continued to drain. Six weeks prior to admission the wound was again incised and drained. A profuse purulent discharge occurred for a few weeks. This subsided but the wound continued to drain. During these three and one half months the patient lost 60 pounds in weight. Part of the time he had lost his appetite but there were no other gastrointestinal symptoms. He received roentgen ray treatment for about one week. A mild fever between 99 and 100 F. persisted after roentgen ray therapy. He believed he had none prior to that.

Physical Examination.—Temperature was 38.2 C., pulse 120, respiration 18, blood pressure 120/70. The patient did not show evidence of marked weight loss but appeared chronically ill. He was cooperative and entirely rational. The left pupil was slightly larger than the right; both were regular and reacted normally. The upper respiratory tract showed no abnormalities and the lungs were entirely clear. The heart was not enlarged, sounds were distant; there were no murmurs and the rhythm was regular. The abdomen presented a 6 inch transverse incisional scar in the epigastrium. The skin was red about the incision and some drainage appeared through the wound. There was no tenderness. An irregular firm mass attached to the skin 6 inches in diameter was palpated around the incision. No other abdominal masses or organs were felt. A few external and internal hemorrhoids were present. Neurologic examination was within normal limits.

Laboratory Findings.—Blood count: red cells 3,600,000, hemoglobin 11.5 grams, white cells 30,550, differential: eosinophils 1 per cent, "stab" forms 15 per cent, segmented forms 66 per cent, lymphocytes 15 per cent, monocytes 2 per cent. Urinalysis: albumin 1 plus, otherwise normal. Stool was negative. Kahn test was negative. Blood sugar: 109 mg. per cent, nonprotein nitrogen 22 mg. per cent. Agglutination tests: Brucella group, negative; typhoid 4 plus 1:80, 2 plus 1:160. Electrocardiogram was normal. Roentgenograms: Gastrointestinal tract: The distal stomach was elevated suggestive of compression from some extrin-

sic factor. It was displaced upward, perhaps forward, and there was a motor delay of 2 degrees, but without evidence of intrinsic gastroduodenal disease, and this embarrassment was probably due to factors involving the previous operation. The remainder of the examination was indeterminate. Film of the upper abdomen in the erect position to determine presence of air under the diaphragm was indeterminate.

Course in Hospital.—The patient had a septic temperature curve with wide swings ranging between 37 and 41 C. for the first two weeks with many shaking chills. Blood smears for malaria were consistently negative. Sulfadiazine was given and a blood level of 9.4 mgs. per cent attained without improvement. On February 29, an exploratory laparotomy was performed through the transverse upper abdominal scar. The previous scar was excised. Dissection was carried down through necrotic fat and scar tissue until the rectus muscles were identified. These were cut through on both sides and the peritoneum cautiously incised. Numerous adhesions were present between the lower portion of the liver, the stomach, transverse colon and peritoneum. These were cautiously dissected free. After considerable manipulation, a large abscess cavity beneath the liver was opened. A sliver of bone measuring 2 cm. in length was extracted. The pus was yellow and foul smelling. Approximately 1,000 cc. were removed. It was considered possible that this patient had swallowed a bone which had perforated the abdominal esophagus resulting in a lesser sac abscess which had been missed at the previous operation. Drains were inserted. Pathologic examination of the tissues revealed only chronic inflammation. The patient made an apparently uneventful recovery although there was a very slight amount of drainage on discharge.

Second Hospital Admission.—May 31 to June 7, 1944.

Interval History.—The patient's recovery was slow in that he failed to regain his full strength. A pain in the left side of the neck radiating to the region of the left shoulder developed shortly after previous discharge. The patient also gave a recent history of what he called "ptomaine poisoning" characterized by vomiting and diarrhea for two or three days. He attributed this to having eaten some spoiled pork at a barbecue, because a friend had had similar symptoms. A mild fever persisted and the operative wound had never quite healed.

Physical Examination.—Temperature was 37.9 C., pulse 80, respiration 20, blood pressure 94/64. The patient was fairly well nourished and developed and was in no acute distress. The only abnormality listed was in the abdomen where the upper transverse incision appeared well healed except for the left corner over which was a thin crust. Considerable induration and slight tenderness was present around this wound.

Laboratory Findings.—Blood count: red cells 3,540,000, hemoglobin 11.5 grams, white cells 13,300, differential: eosinophils 1 per cent, "stab" forms 4 per cent, segmented forms 76 per cent, lymphocytes 19 per cent. There were no other reports.

Course in Hospital.—The patient was fluoroscoped and normal excursion of the diaphragms noted without evidence of subphrenic abscess. Gastrointestinal roentgen ray examination was done but nothing conclusive was found. The stomach was somewhat displaced, as previously noted, but this was attributed to the former abscess and resulting adhesions. The temperature ranged between 36.8 and 38 C. and some fever was present daily. The patient was sent home with advice to his physician that a course of sulfadiazine be tried. Further operation was not advised.

Third Hospital Admission.—August 12 to September 13, 1944.

Interval History.—Since previous discharge the patient had no symptoms other than weakness and was unable to work because of this. Ten days before admission he began to have choking sensations in his throat which he described as a "drawing" pain deep in the throat. There was no respiratory difficulty other than shortness of breath on exertion. During this interval he noted a skipping of his heart beat. For this quinidine was prescribed without noticeable effect. Five days previous to admission swelling of the ankles occurred but this subsided considerably. There was no previous history of cardiac manifestations.

Physical Examination.—Temperature was 36 C., pulse 80, respiration 16, blood pressure 80/60. The patient was described as a thin man of 55 who appeared older than this and looked chronically ill. His skin was slightly pale but there was no cyanosis or jaundice. No abnormalities of the eyes were apparent; the upper respiratory tract was normal. On percussion of the lungs the diaphragms appeared somewhat high. The heart was slightly enlarged to the left and there was a diffuse apical impulse. The rhythm was irregular. The apical rate was 120, the radial 80, no murmurs were heard. The peripheral veins were somewhat prominent. The abdomen presented an almost healed transverse scar with a small sinus from which a few drops of thick, green pus were expressed. No tenderness, redness or induration were observed. The liver, spleen and kidneys were palpable. There was no edema. Neurologic examination showed normal findings.

Laboratory Findings.—Blood count: red cells 3,460,000, hemoglobin 10.9 grams, white cells 12,400, differential: basophils 1 per cent, eosinophils 1 per cent, "stab" forms 5 per cent, segmented forms 75 per cent, lymphocytes 17 per cent, monocytes 1 per cent. Urinalysis: albumin trace, otherwise negative. Stool examination: benzadine 4 plus; guaiac 1 plus. Neutral fat was negative. Blood chemistry: sugar 109 mgs. per cent, nonprotein nitrogen 14 mg. per cent, amylase 57 units, proteins 5.3 grams per cent, albumin 3.0, globulin 2.3, icterus index 6. Sedimentation rate: 0.9 mm. per minute.

Roentgenograms: There was left cardiac enlargement, 1 degree, fluid in the left pleural cavity and there was a small patch of haziness in the cardiophrenic angle on the right extending just above the diaphragm. Its exact nature could not be determined from the film. Cervical and dorsal spines showed osteoarthritis with narrowing and destruction of the intervertebral disk between the fifth and sixth cervical vertebrae. A questionable spina bifida occulta of the third, fourth, fifth and sixth cervical vertebrae was present. Electrocardiogram: T waves isoelectric in leads one and two, diphasic in lead 3, inverted CF-2 and CF-4.

Course in Hospital.—The patient was placed on digitalis and penicillin. On August 21 he developed mild precordial pain. The rhythm was regular, the rate about 90. At that time the white blood cells were reduced to 12,500 with 8 "stabs" and 68 segmented forms. On that day a thoracentesis was done on the left and 1,000 cc. of clear yellow fluid recovered. No tumor cells were identified in the sediment. There were 800 cells, mostly lymphocytes; protein 2.3 per cent. On the following day recurrence of pain in the neck, complained of previous to admission, recurred and Cheyne-Stokes respiration developed. A pleural friction rub occurred over the left chest.

On September 4, the patient became drowsy and semistuporous with generalized muscular twitching. There was occasional cough with production of blood stained sputum and Cheyne-Stokes respirations persisted. The heart sounds were poor. The liver was felt two finger breadths below the right costal margin. Drainage from the abdominal sinus had stopped. His pulse was weak. Repeated electrocardiograms revealed definite tendency to inversion of all the T waves although the patient was receiving digitalis. The urine showed a trace of albumin. The nonprotein nitrogen rose to 63 mg. per cent. His course was thereafter progressively downhill and on September 10, pitting edema of the lower extremities and sacrum developed. Purpuric areas appeared throughout the entire skin. The patient remained stuporous and was unable to take fluid orally. He expired on September 13. Throughout his stay, his temperature was slightly elevated the first week and gradually became depressed during the last week, fluctuating between 35 and 36 C.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: When this patient first came to the hospital, he had signs and symptoms of an abscess within the abdomen. Although surgical exploration was carried out and many studies were done at that time the origin of the abscess could never be demonstrated. In the subsequent history I find nothing that would give positive evidence concerning the pathogenesis of the abscess. We are therefore left at the beginning in a quandary as to the nature of the disease from which this man died. Since it may be relevant let us first consider the pain in the abdomen of which this man complained three years before his death, and before the appearance of a mass in the abdomen. Dr. Scheff, what suggestions do you have?

DR. HAROLD SCHEFF: I would consider an intra-abdominal abscess resulting from perforation of the stomach or of the small intestine.

DR. ALEXANDER: Is that possibility consistent with the finding of a bone in the abscess?

DR. SCHEFF: Yes, he may have swallowed a chicken bone or a fish bone.

DR. ALEXANDER: That suggestion was made at the time of the operation. Are there other suggestions?

DR. WILLIAM OLMSTED: The bone may have perforated the esophagus.

DR. ALEXANDER: Do you think it possible that this patient had a cyst in his pancreas? In the beginning this man was not particularly ill. The mass gradually increased in size and was for a period of time considered a hernia. It was only after the operation that he became ill and showed signs of infection. It is possible that a cyst of the pancreas was opened and became infected secondarily. This pathogenesis, however, does not account for the presence of a bone within the abscess. Are there other suggestions or comments?

DR. CARL HARFORD: Last year I saw a patient who was thought to have a hernia but at operation a large abscess within the abdomen caused by actinomyces was found. Signs and symptoms in that patient and in the patient under consideration today are quite similar.

DR. ALEXANDER: Abdominal actinomycosis must be seriously considered in any patient with a draining sinus which does not heal and which shows little evidence of febrile reaction. Under these conditions, Dr. Harford, how do you account for the bone in the abscess?

DR. HARFORD: It is quite possible that the bone perforated the stomach or esophagus and carried the actinomyces into the tissue. Many normal individuals, particularly those with carious teeth, or with chronic tonsillitis, have actinomyces in the secretions of the mouth and pharynx. The bone which was swallowed with the food may well have carried some of these organisms into the lower intestinal tract.

DR. ALEXANDER: Are there other suggestions?

DR. CARL V. MOORE: I would like to suggest the possibility of Pott's disease. The radiologist described changes in the vertebra which might be a tuberculosis of this tissue.

DR. DONALD BOTTOM: It was our opinion that the changes in the vertebra were the result of some traumatic injury to this bone rather than the end result of an infectious process.

DR. ALEXANDER: This man had a chronic cough for many years. The pleural fluid secured while he was in the hospital contained 800 lymphocytes and the protein contents was 2.3 grams per 100 cc. Would this indicate that the fluid in the pleural cavity was an exudate rather than a transudate?

DR. MOORE: I believe that the evidence is in favor of an exudate.

DR. ALEXANDER: Could this man have had a tuberculous pleurisy?

DR. GOLDMAN: The protein contents of the fluid is lower than is usually seen in tuberculous pleurisy.

DR. ALEXANDER: Three suggestions have been made to account for the initial illness of this patient, abdominal actinomycosis, Pott's disease and a cyst of the pancreas that secondarily became infected. Between the first and second admissions to the hospital, this man complained of pain in the left side of his neck and later of a drawing or choking sensation which became most distressing. The pain radiated from the left side of the neck down the shoulder. The left pupil was noted to be larger than the right. It is possible that these symptoms were related to the changes described by Dr. Bottom in the vertebra. At the time of the third admission the patient suddenly developed signs and symptoms indicative of failure of the heart. On the previous admissions there had been no signs or symptoms to draw attention to the heart, which had been described as normal. The blood pressure was 120/70. Rather suddenly there were edema of the ankles, fluid in the chest and, on electrocardiographic study definite changes in the electrical excitation wave originating in the heart. Dr. Massie, is it your opinion that this man had some disease of his heart?

Dr. Massie: The electrocardiogram taken during the first admission to the hospital was quite normal. The rate was rapid but the T waves were within normal limits. The second record taken ten days after the onset of the high sternal pain shows isoelectric T waves. This record would suggest the early changes of an infarct of the heart. Serial electrocardiographic study did not show the alteration in the T wave which would be expected in a patient recovering from an infarct of the heart. There are two other possibilities which may account for the inversion of the T waves. One is that this patient received digitalis. The other is that he developed an acute pericarditis, in some way related to the abscess in the abdomen.

Dr. Alexander: If this were pericarditis, it would be most likely a constrictive pericarditis, would it not?

Dr. Massie: Yes, the decreasing amplitude of the electrocardiographic waves would indicate a constrictive effect on the heart.

Dr. Alexander: At the time of his last admission, the blood pressure was 80/60. The veins in the neck were distended and the heart was slightly enlarged. Do you believe that these may be taken as evidence of a constriction of the pericardium?

Dr. Massie: Yes, I do. As I remember our discussions on the ward at the time this patient was in the hospital, we considered the diagnosis of constrictive pericarditis.

Dr. Alexander: What about the original diagnosis of an infarct of the heart?

Dr. Massie: I do not believe that this diagnosis is consistent with the course of the disease. There is some evidence for it in the second electrocardiographic record but not thereafter.

Dr. Alexander: We must find some explanation for sudden failure of the heart. Two suggestions have been made, an infarct of the heart and a constrictive pericarditis. Are there other suggestions?

Dr. Harford: Actinomycosis of the pericardium must be considered. In a recent survey of cases of actinomycosis, involvement of the pericardium was a common complication. We already have considerable evidence that this patient may have had abdominal actinomycosis.

Dr. Alexander: You would regard the lesion in the pericardium as a direct extension from the lesion in the abdomen?

Dr. Harford: No, I do not think that that necessarily follows. The original perforation may have been in the esophagus with the establishment of mediastinal abscess and subsequent involvement of the abdomen through the esophageal hiatus.

Dr. Eckert: The abscess which was drained at the operation was definitely in the lesser peritoneal sac.

Dr. Alexander: The fluid removed from the pleural cavity did not have the characteristics of an exudate caused by actinomycosis.

Student: Were cultures made for fungi at the time of the original operation?

Dr. Eckert: Yes, many cultures on different types of media were made and no fungi could be isolated.

Dr. Alexander: Manifestly, we can come to no definite conclusion concerning the disease from which this man suffered. With the evidence at hand we must conclude that he developed an abscess in the lesser peritoneal cavity about three years ago. This abscess may have resulted from perforation of the stomach or small intestine by a bone. Whether or not it was caused by actinomycoses cannot be established. Subsequently, he developed either abscesses of the liver or direct extension from the abdominal abscess to the thoracic organs. During the last few weeks of his life some serious disease of the heart developed. This may have been an infarct of the heart or a constrictive pericarditis.

ANATOMIC DIAGNOSIS

Scar of the posterior wall of the stomach.

Healed transverse operative wound of the anterior abdominal wall (history of drainage of abscess of the lesser omentum, seven months, with removal of small spicule of bone).

Fibrous peritoneal adhesions.

Atrophy of the left lobe of the liver and focal fibrous thickening of the capsule.

Purulent pericarditis over the left ventricle.

Fibrous obliteration of the pericardial cavity.

Recent and organizing thrombi in the primary and secondary branches of the pulmonary artery.

Recent infarcts of the lower and middle lobes of the right lung and of all lobes of the left lung.

Bronchopneumonia of all lobes of the lungs.

Serofibrinous pleurisy (1,000 cc. left, 1,400 cc. right).

Hyperplasia of the tracheobronchial and bronchopulmonary lymph nodes.

Chronic passive congestion of the liver and spleen.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: With the history as presented and the anatomic observations of the autopsy, I believe we are in a position to advance a logical explanation of the illness of this man.

About three years ago this man swallowed a small bone which perforated the posterior wall of the stomach and carried bacteria with it. The perforation healed and a scar was found at autopsy. In the lesser peritoneal sac an abscess developed and gradually increased in size. The inflammation extended up over the left lobe of the liver and caused atrophy of it.

Shortly before the second admission, the diaphragm was invaded and the typical pain in the neck from disease of the diaphragm was noted. Some time before the third admission, the inflammation extended into the pericardial sac and a low grade process with fibrosis was established. After some weeks the fibrosis and accumulation of pus in the pericardium compromised the heart and there was cardiac failure.

The final events were emboli to the pulmonary artery and a bronchopneumonia.

CASE 60

PRESENTATION OF CASE

A 54 year old white widow entered Barnes Hospital on September 14 and died September 17, 1944.

Chief Complaints.—Shortness of breath, cough, bloody sputum, pain in the right chest and fever.

Family History.—Father died at 70 from his third stroke. One sister, aged 52, had heart trouble.

Past History.—The patient had been relatively well until the menopause. She had had scarlet fever at the age of 12 and had been told that she had a weak heart due to this. She had measles severely at the age of 33. The menopause began eight years previous to admission and since that time she had had a succession of illnesses. These included periodic attacks of pain in the right upper abdomen which radiated around the rib margin to the back and were associated with nausea and vomiting. Three years later vaginal bleeding appeared but this stopped after a course of roentgen ray treatment. Shortly thereafter she developed spastic paralysis of her lower extremities. This cleared up after several months. About one year later intense pain in the right flank appeared followed by blood in the urine and she was told that she had a kidney stone. Three years previous to admission, the patient suffered a sudden onset of a severe, crushing pain in the chest which radiated down her left arm. This lasted for three or four hours and was relieved by an injection. Since that



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time she had remained in bed because of shortness of breath on slight exertion. There had been several intervals of similar pain but these had been of short duration. On a few occasions there had been sudden attacks of shortness of breath occurring in the night. She formerly took care of her house but, because of obesity, had fatigued easily. Her average weight was about 250 pounds.

Present Illness.—On July 17, the patient developed right upper quadrant pain and tenderness accompanied by a hard chill and a temperature of 104 F. An abscess of the liver was diagnosed and she took forty-five tablets of some sulfa drug and felt better. On August 17, she had another hard chill with a fever of 105 F. and this was diagnosed as pneumonia, complicating the previous abscess. She was again given sulfa drugs which she took until admission. The pain in the right upper quadrant recurred frequently. It radiated in all directions, especially to the right shoulder, and deep breathing made it worse. Two weeks before admission the patient developed considerable cough with the production of bloody sputum, as much as a cup full a day. The blood appeared in clots.

Physical Examination.—Temperature was 39.2 C., pulse 150 (apical), respiration 24, blood pressure 98/72. The patient was very obese and appeared critically ill. She was cyanotic, orthopneic, and shortness of breath was increased on even slight motion. The pupils reacted normally; the fundi showed minimal arterial changes. The upper respiratory tract was within normal limits. There was some dulness to percussion of the right lung posteriorly over which tactile fremitus seemed slightly decreased. There were diminished breath sounds over this area and a leathery friction rub was heard at the end of inspiration. Rales were audible at both bases. The heart was enlarged to percussion both to the right and to the left where it extended almost to the anterior axillary line. The apex beat was diffuse, the rhythm was totally irregular and the sounds were of poor quality. No significant murmurs were heard. There was a pulse deficit of 52 with apical rate of 150 and radial of 98. The liver edge was barely felt and there were no other abnormal findings in the abdomen. There was slight pitting pretibial edema. The reflexes were physiologic.

Laboratory Findings.—Blood count: red cells 4,000,000, hemoglobin 12 gms., white cells 12,800, differential count: juvenile forms 2 per cent, "stab" forms 15 per cent, segmented forms 67 per cent, lymphocytes 16 per cent. Urinalysis: normal throughout. Kahn test was negative. Blood chemistry: nonprotein nitrogen was 16 mg. per cent; total proteins 5 gms. per cent, albumin 2.8, globulin 2.2, icterus index 6.5, bromides trace. Phenolsulphonphthalein renal function test was 15 per cent excretion in one hour, 35 per cent in two hours. Circulation time: (decholin) 31 seconds. Venous pressure: 170 mm. saline. Electrocardiogram: T waves inverted in CF-2 and CF-4; auricular fibrillation, ventricular premature contractions. Roentgenogram of the chest: cardiac outline was somewhat enlarged both to the right and the left. The aorta was lengthened. The hilar shadows were quite prominent and there was pulmonary infiltration in the third, fourth and fifth anterior interspaces on the right. The exact nature of this was not clear. There was a small amount of fluid in the right pleural cavity.

Course in Hospital.—On the day following admission the patient complained of a slight pain down both legs and a feeling of numbness. The pains gradually increased in severity. On examination, the heart was fibrillating with an apical rate of 108 and a radial rate of 100. Blood pressure was 140/90. Both extremities showed a blotchy appearance and the toes were cool and bluish in appearance. No pulsation could be felt below Poupart's ligament. Pain to pin prick was felt at first but this soon became lost. There was a decrease in skin temperature which extended almost to the umbilicus. The patient was operated upon and both femoral arteries were exposed at the level of the inguinal ligament. The arteries were opened. They were probed high up and an attempt made to move a clot by aspiration but it was not possible to remove enough to obtain a free flow of blood on either side and the wound was closed. The following day the legs were cold and pale below the inguinal ligament and a sharp line of demarkation was present bilaterally. The following day the patient became comatose, irregular respirations developed and death soon occurred.

CLINICAL DISCUSSION

Dr. Harry Alexander: This patient during the last eight years of her life was forced on several occasions to seek medical advice. On one of these occasions she had pain in the right upper quadrant of her abdomen. This pain was paroxysmal in type and radiated around the ribs to the back. It was associated with nausea and vomiting. It is possible that this pain had some relevance to the final illness. Dr. Scheff, what is your interpretation of this attack of pain?

Dr. Harold Scheff: Pain in the right upper quadrant of the abdomen associated with nausea and vomiting is always suggestive of disease of the gallbladder.

Dr. Alexander: Does the fact this patient was obese bear on the diagnosis?

Dr. Scheff: Yes. Disease of the gallbladder appears more commonly in patients who are obese. A colloquial expression of medicine describes the patient with disease of the gallbladder as "fair, fat and forty."

Dr. Alexander: The present illness of this patient began July 17 with acute pain in the right upper quadrant associated this time with chills and a fever of 104 F. There were several attacks of this type of pain during the two months previous to admission to the hospital. What is your interpretation of this?

Dr. Scheff: The patient may have had acute cholecystitis. Fever in patients with cholecystitis usually lasts for two or three days. If it persists for a longer period one should consider the possibility of some complication.

Dr. Alexander: The history does not state the duration of pain but the temperature rose to 105 F. and there was a chill. The pain radiated to both shoulders from the right upper quadrant of the abdomen and was increased in severity on deep breathing. Is that consistent with disease of the gallbladder?

Dr. Scheff: Yes.

Dr. Alexander: Will gallbladder pain radiate to both shoulders? Is it possible that this patient had some involvement of the diaphragm?



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Dr. Scheff: In view of the subsequent course of the illness, I would agree that there was involvement of the diaphragm. The patient may well have had some complication such as a diaphragmatic abscess.

Dr. Alexander: Are there any other possibilities, Dr. Scheff?

Dr. Scheff: The abscess may have originated in the liver and perforated into the subdiaphragmatic region.

Dr. Alexander: Is it common for the pain in disease of the gallbladder to radiate to both shoulders?

Dr. Scheff: It is uncommon but it may occur.

Dr. Alexander: Is it significant that this patient showed a friction rub heard at the right base during the period when there may have been an abscess in the right upper quadrant?

Dr. Scheff: That evidence is strong support for the diagnosis of involvement of the diaphragm.

Dr. Alexander: Are there other comments?

Dr. Cyril MacBryde: May the disease not have originated in the lungs with secondary involvement of the diaphragmatic pleura?

Dr. Alexander: If this were the pathogenesis would you expect to have complaint of pain in the right upper quadrant of the abdomen?

Dr. MacBryde: Yes. That is quite typical of irritation of the pleura. The signs and symptoms were not inconsistent with a diagnosis of an infarct of the right lower lobe of the lungs.

Dr. Alexander: An infarct of the lungs would account for bloody sputum, for pleurisy, for fever, for pain in the shoulders and for the friction rub. It would also account for the pain in the right upper quadrant of the abdomen, if there were involvement of the diaphragm.

Dr. Scheff: I agree that a diagnosis of infarct of the lungs is a possibility but would like to point out that the patient may have had an abscess in the liver and developed metastatic abscesses in the lungs which would give exactly the same picture.

Dr. Alexander: Dr. Goldman, are you inclined to identify the lesion above or below the diaphragm?

Dr. Goldman: It seems to me that most of the evidence points to a lesion above the diaphragm. There were few physical findings on examination of the abdomen. There is no record of any tenderness and the liver edge was not felt. It is difficult for me to believe that any one could have extensive disease within the abdomen without more prominent physical signs. The diaphragm was high.

Dr. Alexander: She weighed 250 pounds. Would that have any influence on the height of the diaphragm?

Dr. Goldman: Irritation of the pleura might well account for a high diaphragm on the right side.

Dr. Alexander: If there are no further comments concerning this phase of her illness let us now consider the pain in the chest of which she complained for the last three years of her life. She also had some dyspnea on exertion and at times paroxysmal nocturnal dyspnea. Is it your opinion, Dr. Massie, that she had an infarct of the heart at that time?

Dr. Massie: As I see it, there are three main possibilities, an infarct of the heart, paroxysmal attacks of auricular fibrillation and an infarct of the lungs. Most of the facts in the history are in favor of the diagnosis of an infarct of the heart. However, the subsequent history does not give too much evidence to support this view.

Dr. Alexander: During the entire three year period she could do little active work. Upon exertion there was dyspnea which was distressing to her and there were also the episodes of paroxysmal dyspnea at night. Do you believe that she had some significant disease of her heart for this three years?

Dr. Massie: Yes, I believe that she did have an infarct of the myocardium. In addition, the excessive body weight may have had some influence in bringing about the cardiac failure.

Dr. Alexander: Is it significant that she did not have hypertension or diabetes?

Dr. Massie: Most women under the age of 40 years with significant diseases of the coronary arteries and an infarct of the heart show either obesity, hypertension or diabetes. However, this woman was 48 years of age and at that age the association of disease of the coronary arteries with diabetes and hypertension is not as striking as in the younger age groups.

Dr. Alexander: Do you feel, Dr. Massie, that obesity is an important factor in the genesis of arteriosclerosis and diabetes?

Dr. Massie: Yes, I do. Diabetes is a little more important than obesity in relation to vascular disease.

Dr. Alexander: Is it common for a patient with an infarct of the heart to have a markedly diminished cardiac reserve and live for three years?

Dr. John Smith: Yes, that may occur. There is always the possibility that a patient may have occlusion of the coronary artery and never experience any severe pain. In fact, almost 50 per cent of all persons with an infarct of the heart do not have the typical pain.

Dr. Alexander: Does the association of disease of the heart and paroxysmal nocturnal dyspnea indicate a grave prognosis?

Dr. Smith: No, not necessarily. Paroxysmal nocturnal dyspnea is a sign of coronary insufficiency and a sign about which the physician should be concerned.

Dr. Alexander: Might we call the symptoms in this patient cardiac asthma?

Dr. Smith: Cardiac asthma is nothing more than a certain type of cardiac dyspnea.

Dr. Alexander: Does cardiac asthma occur more frequently in arteriosclerotic heart disease than in other types?

Dr. Smith: Cardiac asthma occurs in arteriosclerotic heart disease and in aortic regurgitation more frequently than in rheumatic heart disease. It may be a symptom in infarct of the heart associated with significant damage of the coronary arteries.

Dr. Alexander: Does auricular fibrillation occur in patients with an infarct of the heart?

Dr. Massie: Auricular fibrillation is seen more frequently in rheumatic heart disease than in other types. The next most frequent is in arteriosclerotic heart disease and the least frequent is in syphilitic heart disease. Rheumatic heart disease accounts for about 40 per cent of all examples of auricular fibrillation and disease of the coronary arteries for about 30 per cent.

Dr. B. Y. Glassberg: Do you attach any significance to the history of some disease of the heart at the age of 12?

Dr. Massie: Yes, that history may be significant. It is at the age of 12 or thereabouts that many children develop rheumatic heart disease. Many of the other signs and symptoms in this patient could be accounted for on the basis of rheumatic heart disease, with mitral stenosis and auricular fibrillation. Thus, many of the terminal events could be related to emboli in the pulmonary arteries and in the arteries of the lower extremities.

Dr. Alexander: Dr. Smith, do you agree that this patient may have had rheumatic heart disease?

Dr. Smith: Yes, it is possible, but the shape of the heart in the radiograph does not support that diagnosis.

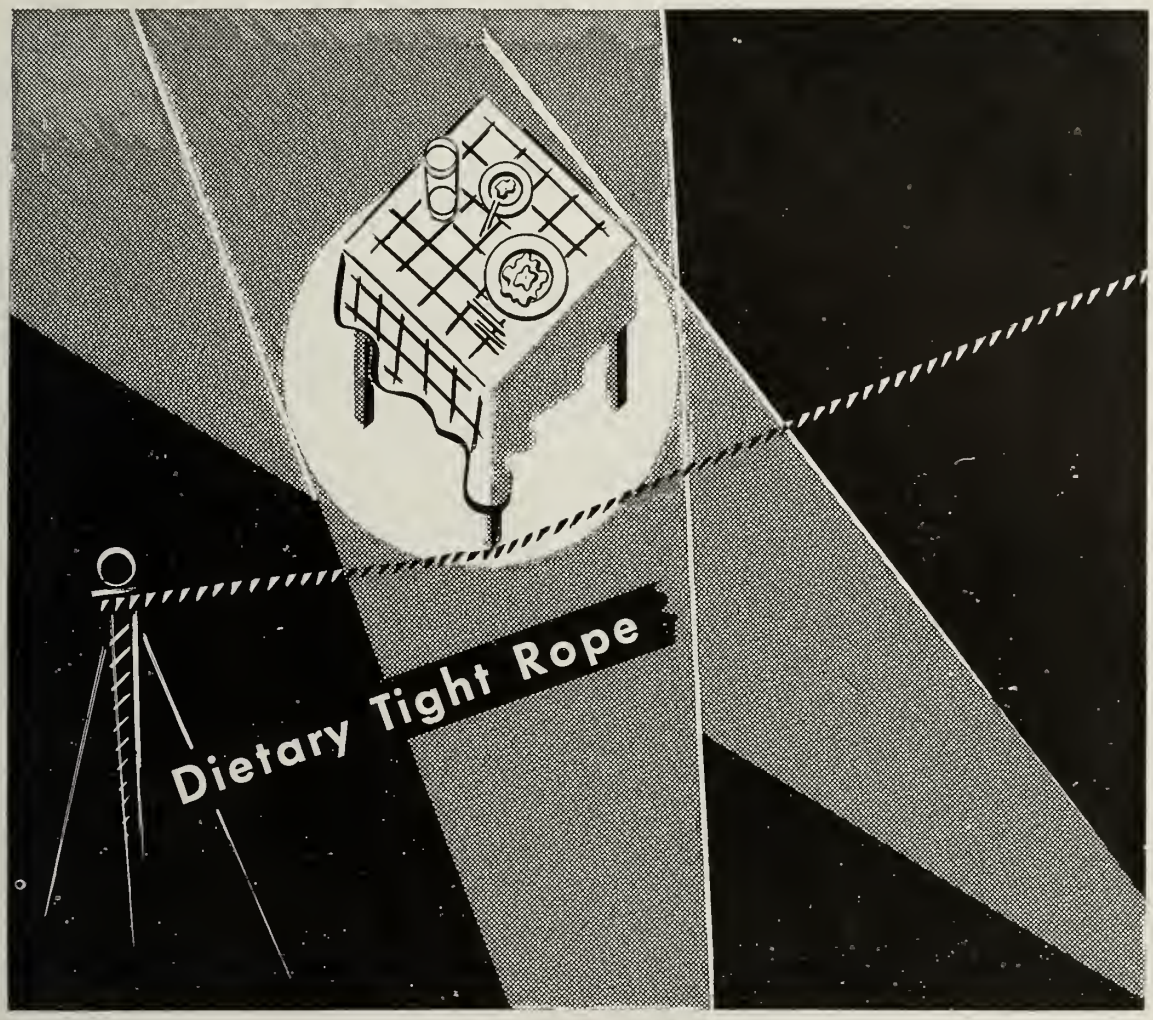
Dr. Massie: I agree that the radiographic evidence does not indicate stenosis of the mitral valve but I do not believe that we should accept this observation as final.

Dr. Alexander: Are there further comments?

Dr. Glassberg: If we assume that this patient had rheumatic disease of the heart, is it not possible that she developed subacute bacterial endocarditis during the last year of her life?

Dr. Alexander: That is quite possible but the symptoms which might be referred to subacute bacterial endocarditis lasted for three years and this seems most unlikely.

Dr. Carl Moore: Is it not extremely unlikely for a patient with auricular fibrillation to develop subacute bacterial endocarditis?



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Dr. Massie: Yes, in chronic auricular fibrillation subacute bacterial endocarditis is infrequent. The explanation for this observation is not at hand. However, this patient did not have chronic auricular fibrillation. There were apparently acute episodes of fibrillation. It is true that a fair number of patients with subacute bacterial endocarditis show transient auricular fibrillation, especially during the active stage of the disease.

Dr. Alexander: Let us consider the signs and symptoms related to possible disease of the lungs. Dr. Goldman, you have expressed the opinion that the disease may well have been above the diaphragm and possibly related to infarcts of the lungs. This patient also complained of signs in the lower extremities, probably caused by emboli in the iliac and femoral arteries. We must thus explain the origin of thrombi and emboli in both the systemic and the pulmonary circulation.

Dr. Glassberg: Is it possible that the disease of the lungs is related to embolism of the bronchial arteries?

Dr. Alexander: As I understand it, the bronchial arteries arise as branches of the aorta, and that embolism of them is extremely rare. Further, that occlusion of the bronchial arteries does not lead to an infarct of the lungs. Dr. Smith, do you agree?

Dr. Smith: Yes, disease of the bronchial arteries is only rarely related to any secondary change in the pulmonary tissue.

Dr. Massie: The principle source of pulmonary emboli is a thrombus in the veins of the lower extremities. We might therefore postulate that this patient developed thrombi in the veins of the legs. The systemic emboli in the iliac and femoral arteries might be accounted for on the basis of parodoxical embolism, but this phenomenon is extremely rare in which an embolus is carried from the right to the left side of the heart through a patent foramen ovale. A much more likely source of the emboli to the arteries of the legs is a thrombus in the left auricular appendage.

Dr. Carl Moore: It seems to me more reasonable to assume that the emboli in the pulmonary and in the systemic circuits came from two different sources. If this patient had some lesion of the liver the emboli in the pulmonary circulation could have arisen from thrombi in the hepatic veins.

Dr. Massie: There is one other possibility which may have played a role in the formation of thrombi in this patient. She received a good deal of digitalis in a relatively short period of time. Under these conditions, there is an increase in the rapidity of the coagulation of the blood. However, when one takes all the facts into consideration it does not seem likely that digitalis was responsible for the formation of thrombi. Much more likely is the deposition of a thrombus in the heart.

Dr. Alexander: Is it possible that the emboli were thrown off from the auricular appendages at a time when fibrillation ceased and normal rhythm was initiated?

Dr. Massie: That does occur but emboli are also discharged during periods of auricular fibrillation.

Dr. Alexander: An embolectomy was attempted on this patient. The vessels to the lower extremity were opened and probed but the entire embolus could not be removed. Dr. Smith, will you tell us something about this operation?

Dr. Smith: The most important factor in the success of this operation is the time interval between the lodgement and removal of the embolus. The operation must be carried out promptly and certainly not more than 30 minutes should elapse between the occlusion of the vessel and the reestablishment of the circulation.

Dr. Alexander: I assume that we are agreed on the general facts concerning this patient's illness. She had gall stones or some other infectious process involving the diaphragm from below. In addition, she probably had infarcts of the lungs or some infectious disease of the lungs involving the diaphragm from above. Finally, she had an infarct of the heart involving the left ventricle with the formation of thrombi within the ventricle and a terminal discharge of emboli to the arteries of the leg.

Dr. Goldman: May I add the possibility of parodoxical embolism? I recently had a patient who two weeks following a fracture of the femur died suddenly with the symptoms of pulmonary emboli and cerebral emboli. At postmortem, a patent foramen ovale was found with small thrombi in both the pulmonary arteries and in the cerebral arteries. This condition is, however, quite rare.

ANATOMIC DIAGNOSIS

Arteriolar nephrosclerosis, slight.

Arteriosclerosis of the coronary arteries and the thoracic and abdominal aorta, moderate.

Sclerosis of the anterior leaflet of the mitral valve.

Hypertrophy and dilatation of the heart (480 grams).

Passive congestion of the liver and spleen.

Large antemortem thrombus attached to the mitral valve and partly within the left atrium (history of auricular fibrillation).

Partially organized mural thrombus attached to the patent orifice of the foramen ovale.

Partially organized thrombi in the major branches of the pulmonary artery.

Recent and partially organized thrombus in the abdominal aorta extending from the lower level of the renal arteries into the common iliac arteries.

Partially healed wounds of the inguinal regions and absence of the thrombi in the femoral arteries. (History of vomiting, pain in the lower extremities, a saddle anesthesia and bilateral femoral embolectomy, two days).

Recent infarcts in the lower lobes of the lungs, in the kidneys and in the spleen.

Recent and healing small infarct of the apex of the left ventricle.

Focal atelectasis of the lungs.

Focal hemorrhages in the visceral pleura of the lungs and beneath the mucosa of the bladder and the endometrium.

Hyperplasia of the spleen.

Chronic cholecystitis and cholelithiasis.

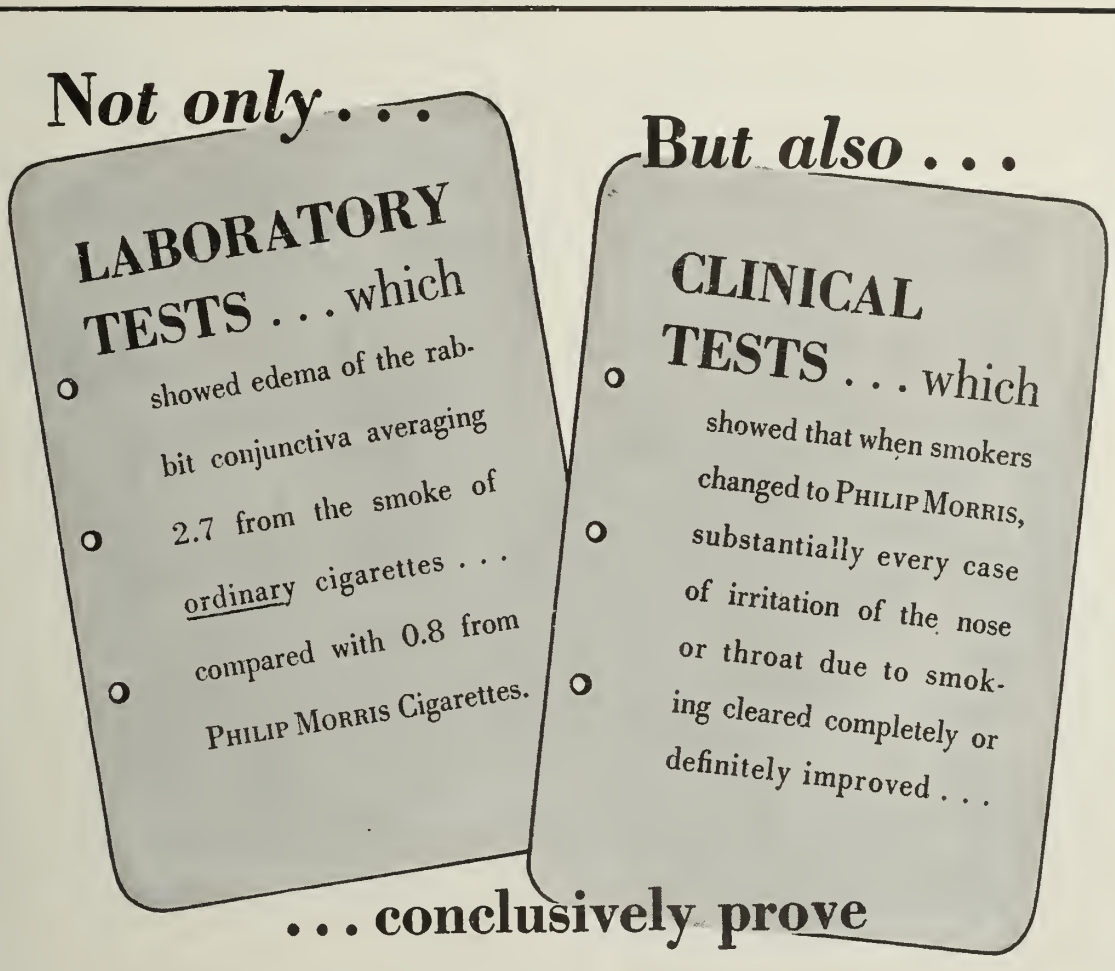
PATHOLOGIC DISCUSSION

Dr. Robert Moore: The basic disease from which this woman suffered during the last three years of her life was arteriosclerosis. The vascular lesions were manifested in the kidney as arteriolar nephrosclerosis. In the heart, the lumens of the coronary arteries were decreased in size and there were recent and healing infarcts of the heart. Some weeks before death thrombi formed in the left auricle and in the veins of the legs, probably because of the slowing of the circulation incident to cardiac failure. From the thrombi in the legs, emboli were carried to the lungs and infarcts of various ages resulted. From the thrombus in the left auricle, an embolus through the aorta lodged in the iliac and femoral arteries. In my opinion the thrombi are older than a few days, hence the digitalis given during the terminal illness was not the cause. The foramen ovale was patent, but it seems unlikely that paradoxical embolism was the mechanism of the systemic lesions in this patient.

There was a chronic cholecystitis and it is possible that the pain in the right upper quadrant of the abdomen was related to disease of the gallbladder.

THERE IS NO CURE FOR LEUKEMIA

"There is no new drug which offers any hope in the treatment of acute leukemia" *The Journal of the American Medical Association* for December 9 says in answer to an inquiry. "Reports of cures or new treatments of leukemia appear frequently in the press. The index of one large newspaper contains seven reports of new treatments for leukemia in the past six years; none of these have proved successful. If a specific agent for leukemia is discovered, it would undoubtedly receive prompt recognition in *The Journal*."



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BOOK REVIEWS

The Arthropathies. A Handbook of Roentgen Diagnosis. By Alfred A. de Lorimier, A.B.; M.A.; M.D. Colonel, Medical Corps, United States Army; Commandant, The Army School of Roentgenology, Memphis, Tenn. Formerly Director, Department of Roentgenology, Army Medical School, Washington, D. C. Chicago: The Year Book Publishers. 1943. Price $5.50.

When one realizes that the arthropathies account for the third largest group of conditions requiring hospitalization and compensation since World War 1, then he can understand the importance of the roentgen examination which becomes the prime factor in the successful estimation of diagnosis, disability and treatment.

Colonel de Lorimier is the Commandant of the Army School of Roentgenology at Memphis and the designer of the mobile x-ray equipment now used with all expeditionary forces. He is an indefatigable student who is gifted with scientific fervor and endowed with fine human qualities.

This is not a wordy textbook but rather an abbreviated handbook and atlas of roentgen films of joint diseases, anomalies, malformations. Part I takes up the peripheral joints with the osteochrondropathies of specific origins such as syphilis, rickets, scurvy and the nonspecific group of Perthe's, Osgood-Schlatter, Freiberg's, Kohler's, dissecans; then the traumatic, static, senescent, hemorrhagic, and neoroarthropathies; finishing off with the allergic, toxin, infectious, tuberculous, gonococcic, syphilitic types of arthritis, then the neoplasms.

Part II is devoted to the spine. The headings are extensive and need not burden this review. The method of film reproduction and markings is unique and comprehensive. The index is extensive. The author has obtained characteristic films from innumerable sources. The book is small enough to handle easily for reference. If there could be any criticism, and in a way this is a compliment, it is that there are just too many illustrations. But a detailed examination of any moot question in roentgen bone diagnosis will find good answers in this small volume. It is multum in parvo and good.

E. H. S.

The Principles and Practice of Obstetrics. By Joseph B. De Lee, A.M., M.D., Formerly Professor of Obstetrics and Gynecology, Emeritus, University of Chicago; Consultant in Obstetrics, Chicago Lying-in Hospital and Dispensary; Consultant in Obstetrics, Chicago Maternity Center; and J. P. Greenhill, B.S., M.D., Attending Obstetrician and Gynecologist, Michael Reese Hospital; Obstetrician and Gynecologist, Associate Staff, Chicago Lying-in Hospital; Attending Gynecologist, Cook County Hospital; Professor of Gynecology, Cook County Graduate School of Medicine. Eighth Edition, Entirely Reset. 1101 pages with 1074 illustrations on 841 figures, 209 of them in colors. Philadelphia: W. B. Saunders Company. 1943. Price $10.00.

In 1913 Dr. De Lee wrote his first textbook on obstetrics, and it now has entered its eighth edition. These books have been used universally by students and teachers and the text is one of the best for the general practitioner who practices obstetrics. One of the most commendable features of all of De Lee's books have been the excellent illustrations and diagrams, some of which are colored.

As Dr. De Lee recently passed away, his associate, Dr. J. P. Greenhill, has edited this last edition and several chapters and sections have been rewritten completely, notably the chapter on toxemias of pregnancy which contains the new classification set forth by the American Committee on Maternal Health.

Several chapters have been rewritten by other men. The chapter on embryology was revised by Dr. George W. Bartelmez and Dr. Louis Rudolph has written an excellent article on the physiology of uterine contractions and the mechanism of labor. Some eight or ten other men have contributed their knowledge to this excellent work.

This book is very up-to-date and many of the latest methods found here were taken from the publication, put out by the Year Book Publishers.

A very unusual change has taken place in this work, the substitution of English terms for the Latin ones and the designation of presentation and position. There are chapters on vitamin K, endocrinology, erythroblastosis fetalis, x-ray in obstetrics and the sulfa drugs.

E. L. D.

Council on Pharmacy and Chemistry. Annual Reprint of the Report of the Council on Pharmacy and Chemistry of the American Medical Association for 1943 with the Comments That Have Appeared In *The Journal*. Chicago: American Medical Association. 1944. $1.00.

The present volume of reprints contains only eight reports on rejected articles; it is interesting to note that objections to these are on a much higher plane than those it was necessary to urge against the flagrantly quackish preparations of earlier days.

Perhaps the most noteworthy of the nineteen general and "status" reports in this volume is the one declaring the Council's intention of using henceforth only the metric or centimeter-gram-second system in its publications. The report itself gives some interesting and readable history on the subject of weights and measures. Of most timely interest to the general physician as well as the endocrine specialist is the report on nomenclature of endocrine preparations. The report gives a currently quite complete list of the available commercial preparations, including those not accepted by the Council as well as those which stand accepted. Another report in the field of endocrinology is that recognizing the use of estrogens in the treatment of prostatic carcinoma.

Attention should be called to at least two of the reports concerned with vitamin preparations, namely, the status report giving the Council's decision that the evidence does not yet warrant the acceptance of cod liver oil preparations for external use, and the report announcing the Council's recognition of the use of massive doses of vitamin D in arthritis, and in this volume includes a current comment from *The Journal* titled "Hope (false) for the Victims of Arthritis," which reemphasizes this objection.

The status report on xanthine compounds gives a much needed delimitation of the therapeutic claims that may be recognized for aminophylline and its related xanthine derivatives. Of similar interest is the report on the local use of sulfonamides in dermatology, and in the same category may be mentioned the report on agents for the treatment of Trichomonas Vaginitis, which points out that the present aim should not be for new medicaments in this field but for further information, especially concerning failures with those that have been used. In another status report the Council sets forth its conclusion that present evidence does not justify claims for advantage of oral use of sodium sulfonamides over the free drug.

In line with its decision to consider for acceptance various contraceptive preparations, the Council published a status report on conception control, which is concluded in this volume. The report comprises a series of concise statements on the various preparations and methods of control, prepared by Dr. Robert Latou Dickinson, together with a statement of criteria by which the Council will consider the acceptability of contraceptive jellies, creams, and syringe applicators and nozzles, diaphragms and caps.

It cannot be too often said that this volume, as well as the other publications of the Council, remains of paramount interest to all who are concerned with rational use of therapeutic agents.

3

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THE JOURNAL

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JANUARY, 1945

EDITORIALS

THE JOURNAL

The Journal is beginning the new year with several changes in its make-up. It is hoped that members will approve the change in the cover and the placing of advertising through more of The Journal as is done by practically all current publications.

Since the amount of paper that can be used in each six month period is set by the Government, The Journal must continue to use the given number of pages in each of these periods. However, during the spring of 1945 The Journal will vary in size with some issues, when there is considerable material to be presented to members, being larger and the other issues being smaller. In this way there can be several issues during the first six months of 1945 that will more nearly approximate The Journal of former years.

MISSOURI MEDICAL SERVICE

Missouri Medical Service had the first meeting of its Board of Trustees on December 3 at which the following officers were elected: President, Dr. Carl F. Vohs, St. Louis; first vice president, Dr. H. B. Goodrich, Hannibal; second vice president (predicated on changes in the by-laws), Mr. Louis W. Reps, Springfield; secretary, Dr. Raymond O. Muether, St. Louis; treasurer, Mr. George M. Berry, St. Louis.

The following executive committee was selected: Dr. Carl F. Vohs, St. Louis, chairman; Dr. W. A. Bloom, Fayette; Dr. J. W. Thompson, St. Louis; Judge Fred J. Hoffmeister, St. Louis; Mr. George M. Berry, St. Louis.

The finance committee selected is Mr. George M. Berry, St. Louis, chairman; Dr. Wallis Smith, Springfield, Dr. E. C. Ernst, St. Louis; (two places left open).

An ethics and membership committee was selected as follows: Dr. H. B. Goodrich, Hannibal, chairman; Dr. J. W. Thompson, St. Louis; Dr. E. C. Bohrer, West Plains.

All contracts prepared by the organizing committee were discussed. Information about the plan, which was adopted by the House of Delegates of the Missouri State Medical Association at the 1944 Annual Session, appears on page 10.

Members are conversant with the general principles of the plan from the report made to the House of Delegates and published in the July issue of The Journal. In order that the members may be completely informed about the plan, all contracts will be published in The Journal.

MISSOURI DOCTORS IN SERVICE

As often as possible hereafter, it is intended to devote a page or more of The Journal to information about the activities and whereabouts of members of the Missouri State Medical Association who are in military service. The Journal is being sent to all Missouri doctors in service as well as those at home. It is hoped that the column will be of interest to all and The Journal will appreciate receiving items from men in service as well as any excerpts from letters received by friends or families of members. Please address any information to The Journal of the Missouri State Medical Association, 623 Missouri Building, St. Louis 3, Mo.

"THE DOCTOR GLARES AT STATE MEDICINE"

An article entitled "The Doctor Glares at State Medicine" written by Frederic Nelson appeared in the December 9 issue of *The Saturday Evening Post.* Two major conclusions, in the writer's opinion at least, with which many doctors will agree are as follow:

"1. That American doctors are against socialized medicine or any modification thereof which subordinates them to bureaucrats, makes them salaried officials or interferes with their professional standards.

"2. That American doctors are definitely interested in making medical care available to more people, and in plans to pay doctors' bills on the insurance principle —provided such plans are nonpolitical."

WARTIME HEALTH AND EDUCATION

The subcommittee of the Committee on Education and Labor, as set up by Senate Res. 74, chairman of which is Senator Claude Pepper of Florida, has held three meetings at which representatives of the American Medical Association, hospital associations and prominent persons interested in public health have been invited to appear. A transcript of the first two meetings has been published and may be obtained by writing to the representatives in Congress or Senators. The first meetings were held July 10, 11 and 12 and the second on September 18, 19 and 20.

Representatives from Missouri are: Hon. Wat Arnold, First District; Hon. Max Schwabe, Second District; Hon. William C. Cole, Third District; Hon. Charles Jasper Bell, Fourth District; Hon. Roger C. Slaughter, Fifth District; Hon. Marion C. Bennett, Sixth District; Hon. Dewey Short, Seventh District; Hon. William P. Elmer, Eighth District; Hon. Clarence Cannon, Ninth District; Hon. Orville Zimmerman, Tenth District; Hon. John B. Sullivan, Eleventh District; Hon. Walter C. Ploeser, Twelfth District; Hon. John J. Cochran, Thirteenth District.

Congressmen from Missouri are: Hon. Forrest C. Donnell and Hon. Harry S. Truman.

Representatives should be addressed "House of Representatives" and Senators "Senate Office Building."

APPROVED HOSPITALS

The American College of Surgeons has announced that 3,152 hospitals in the United States and Canada are included in the 1944 "Approved List." A total of 3,911 hospitals were included in the 1944 survey and the approved hospitals represent 80.6 per cent. The first annual survey in 1918 included 692 hospitals of 100 beds or more of which 89 or 12.8 per cent merited approval. The current survey includes hospitals of 25 beds or more.

A total of 2,342 hospitals of 100 beds or more were on the 1944 survey list and 2,192 or 93.1 per cent were approved. Of 1,119 hospitals of from 50 to 99 bed capacity, 789 or 70.3 per cent were approved. Of 450 hospitals of from 25 to 49 bed capacity, 181 or 40.2 per cent were approved.

Both the increase from 692 hospitals of 100 beds or more in 1918 to 2,342 in 1944 and the percentage of existing hospitals approved, 12.8 per cent in 1918 and 93.1 per cent in 1944, give striking illustration of the improvement of hospitalization for the sick.

NEWS NOTES

The following program was presented by the St. Louis Surgical Society on November 22: "Inflammatory Extrinsic Obstruction of the Duodenum in a Twenty Month Old Baby," Dr. George F. Rendleman; "Premature Separation of the Placenta," Dr. E. Lee Dorsett; "Sudeck's Disease," Dr. Robert Mueller; "Possible Complications of Impacted Fractures of the Neck of the Femur," Dr. Stanley M. Leydig; "The Application of Sulfafilm as a Protective Dressing for Skin Grafts," Dr. Henry P. Thym.

Dr. Earl Engle, Columbia University College of Physicians and Surgeons, New York, presented the annual Robert J. Terry Lecture at the St. Louis Medical Society on December 19. His subject was "Endocrine Aspects of Menstruation, Amenorrhea and the Menopause."

The Kansas City O. O. R. L. Society will present an oil painting of Dr. Hal Foster of Kansas City to the American Academy at its meeting in Chicago in October 1945 when the Academy will celebrate its fiftieth anniversity. The Academy was founded by Dr. Foster at a meeting in Kansas City April 9 and 10, 1896.

The following members of the Missouri State Medical Association were accepted into fellowship in the American College of Surgeons in 1944: Drs. Everett D. Sugarbaker, Columbia; W. F. Francka, Hannibal; Hugh G. Hamilton, Kansas City; Samuel P. Harbison, Louis H. Jorstad and William J. Wotawa, St Louis; Edward C. Holscher, Glendale; Harold J. Shelton, Webster Groves; Eutimio D. Tenaglia, Clayton; A. Denton Vail, Springfield.

The Chicago Medical Society will hold its second Annual Clinical Conference at the Palmer House, Chicago, February 27 and 28 and March 1. The program will be intensive postgraduate work and there will be both scientific and technical exhibits.

Dr. J. Archer O'Reilly, St. Louis, was given a citation and medal for distinguished service to crippled children throughout the country during the twenty-second annual meeting of the National Society for Crippled Children in Chicago in October. Dr. O'Reilly is president of the St. Louis and Missouri societies of crippled children, has been a member of the board of trustees of the national society since 1930 and has served as secretary and chairman of the Section on Orthopedic Surgery of the American Medical Association.

The annual lecture of the Alpha Omega Alpha Fraternity at Washington University School of Medicine was presented by Dr. Joseph Earle Moore, Johns Hopkins University School of Medicine, Baltimore, on November 10. His subject was "Chemotherapy of Syphillis."

A $500,000 addition to the present building of the St. Louis University School of Medicine is planned in the $2,600,000 postwar expansion program of the university. Plans have been completed and work will be started on the medical school immediately on release of permission by the War Production Board. The new building will be four stories of brick and stone and will contain an amphitheater which will seat the entire student body.

Dr. G. Leonard Harrington, Kansas City, was a speaker at a regional conference of the Missouri Association for Social Welfare in Kirksville in October.

Drs. Wallis Smith, Springfield, and Louis H. Jorstad, St. Louis were speakers at a district training school held by the Field Army of the American Cancer Society at Springfield, November 29 and 30. Dr. Smith spoke on "Value of the Field Army in the Early Diagnosis of Cancer" and Dr. Jorstad spoke on "Recent Developments in Cancer Research."

The December issue of *Fortune* carries an article of interest of physicians, "U. S. Medicine in Transition."

DEATHS

Usher, Thomas Raymond, M. D., St Louis, a graduate of St. Louis University School of Medicine, 1932; member of the St. Louis County Medical Society; died September 30; aged 40.

Kelley, James Howard, Jr., M. D., Springfield, a graduate of Washington University School of Medicine, 1925; member of the Greene County Medical Society; Fellow of the American Medical Association; died October 17; aged 47.

Platter, Abram Edwin, M. D., Memphis, a graduate of the University Medical College of Kansas City, 1896; member and former president of the Scotland County Medical Society; died October 20; aged 78.

Kittelberger, G. W., M. D., Hallsville, a graduate of St. Louis University School of Medicine, 1932; member of the Boone County Medical Society; died October 31; aged 44.

Bassett, Samuel Taylor, M. D., University City, a graduate of Washington University School of Medicine, 1907; Life Member of the St. Louis Medical Society; Fellow of the American Medical Association; retired; died November 1; aged 71.

Dewey, Corydon O., M. D., St. Joseph, a graduate of the Missouri Medical College, St. Louis, 1882; Honor Member of the Buchanan County Medical Society; retired; died November 3; aged 83.

Griffith, Abram Comingo, M. D., Kansas City, a graduate of the University of Kansas School of Medicine, 1906; Honor Member of the Jackson County Medical Society; Fellow of the American Medical Association; died November 9; aged 63.

Hourn, George Edwin, M. D., St. Louis, a graduate of Washington University School of Medicine, 1913; member of the St. Louis Medical Society; Fellow of the American Medical Association; died December 10; aged 66.

Pearse, Herman Elwyn, M. D., Bonner Springs, Kansas, a graduate of the St. Louis College of Physicians and Surgeons, 1888; honorary member of the Kansas Medical Society; past president of the Missouri State Medical Association and the Jackson County Medical Society; died June 10; aged 84.

Elmer H. Bartelsmeyer, St. Louis, Executive Secretary of the Missouri State Medical Association from 1933 to 1942, died November 18, in Deaconess Hospital, St. Louis. Prior to his connection with the Association, he had been secretary to the Police Board of St. Louis for ten years and executive secretary of St. Louis Medical Society for three years. He was 54 years of age.

Florence Eva Dillan, Indianapolis, died suddenly at an Indianapolis Hospital on October 12. Miss Dillan had reported the Annual Sessions of the Missouri State Medical Association for many years. She was born in West Middlesex, Pennsylvania, March 9, 1867, and had lived in Indianapolis for forty years.

MISSOURI DOCTORS IN SERVICE

Captain Kenneth C. Cox, Kansas City, was in Kansas City on a short leave recently.

★ ★

Dr. Henry Gerard Schwartz, St. Louis, has been promoted from a major to a lieutenant colonel.

★ ★

Commander Ralph E. Duncan, Kansas City, visited in Kansas City recently while on a short leave.

★ ★

Dr. Richard L. Sutton, Jr., Kansas City, has been promoted to a major. He is located at the Woodrow-Wilson Hospital at Staunton, Virginia.

★ ★

Major General Norman T. Kirk, Surgeon General, spoke before the commanding officers of Medical Depots at a meeting in St. Louis in November.

★ ★

Major Ralph Coffey, Kansas City, was in St. Louis recently on his way to Fort Leonard Wood. He is back in this country from the European theater.

★ ★

Colonel Rex L. Diveley, Kansas City, chief of the division of rehabilitation in the European theater, was heard from London, England, on the Victory Parade of Spotlight Bands program November 30.

★ ★

Captain Alphonse McMahon, St. Louis, Chief, Medical Service, U. S. Naval Hospital, Bethesda, Md., presented an address at the meeting of the Southern Medical Association in St. Louis November 13 to 16. He spoke on "Civilian Tropical Disease Problems Following Demobilization."

★ ★

Lieutenant Colonel Durward G. Hall, Springfield, has been assigned as Director of the Military Personnel Division, Personnel Service, Office of the Surgeon General. Col. Hall has been with the office of the Surgeon General since 1941 and prior to his new assignment was Chief of the Strategic and Logistics Planning Unit, Operations Service.

Lt. Col. Curtis H. Lohr, St. Louis, has been promoted to the rank of Colonel.

★ ★

Dr. Winton T. Stacy, St. Joseph, has been promoted from major to lieutenant colonel.

★ ★

Dr. F. I. Wilson, Kansas City, has been promoted from Major to Lieutenant Colonel.

★ ★

Dr. Hilen K. Wallace, St. Joseph, has been promoted from Major to Lieutenant Colonel.

★ ★

Major Lee Petit Gay, St. Louis, was on the program of the Southern Medical Association in St. Louis, November 13 to 16.

★ ★

Lieutenant Colonel Luke A. Knese, St. Louis, was recently home on furlough from the Hawaiian and South Pacific area for the first time since February 1941. He came directly from Guam.

★ ★

Captain Leon F. Weyerich, St. Louis, has received the silver star for gallantry in action. Captain Weyerich was a member of the original assault battalion which participated in the landings in Normandy on D day.

★ ★

An article in *Colliers* of December 16, "New Faith at Valley Forge" tells of the work of Lt. Col. James Barrett Brown, St. Louis, chief of plastic surgery at Valley Forge General Hospital at Phoenixville, Pennsylvania.

★ ★

Colonel Howard A. Rusk, St. Louis, delivered an address and presented an exhibit at the meeting of the Southern Medical Association in St. Louis, November 13 to 16. His address was on "New Horizons in Medicine" and the exhibit was "Convalescent Training Program in the Army Air Forces." Colonel Rusk is Chief of the Convalescent Training Division, Office of the Air Surgeon, Army Air Forces, Washington, D. C.

A Quarantine Branch in the Epidemiology Division, Preventive Medicine Service, has been established under the direction of Lt. Col. Phillip T. Knies, Army Quarantine Liaison Officer. Close cooperation will be maintained with the Public Health Service, the Navy and other Government agencies concerned with quarantine. The new program, which aims to extend precautionary measures throughout the Army's far-flung routes of travel, is part of the Medical Department's continuing battle against disease, which has given this country the healthiest fighting forces in the world and the healthiest soldiers in any war in history.

In connection with the recent announcement that the Army is no longer recruiting physicians, the following figures are of interest: The Army Medical Department has grown from 8,010 at the beginning of World War I until it now numbers 680,891. Of this number approximately 44,651 are in the Medical Corps, 14,948 in the Dental Corps, 2,012 in the Veterinary Corps, 2,364 in the Sanitary Corps, 15,078 in the Medical Administrative Corps, 59 in the Pharmacy Corps, 40,305 in the Army Nurse Corps, and there are 559,327 enlisted men, 813 Physical Therapy Aides, and 1,334 Hospital Dietitians.

Whole blood shipments to the Pacific battlefront started on November 16. The blood is collected in San Francisco, Oakland and Los Angeles by the Red Cross, typed by Army and Navy laboratories, and flown by Navy plane across the Pacific for joint use by the armed forces. Although West Coast shipments of ice-packed whole blood started on a small scale, more than 200 pints a day are now being called for to make the three day Pacific flight. Meanwhile, daily flights of whole blood donated in New York, Boston and Washington, cross the Atlantic within twenty-four hours for use in the European theater of operations.



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COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1945

(Societies Which Have Paid Dues for All Members and Date Placed on Honor Roll)

Perry County Medical Society, December 1, 1944.

Moniteau County Medical Society, December 19, 1944.

Camden County Medical Society, December 19, 1944.

BOOK REVIEWS

Problems of Ageing. Biological and Medical Aspects. Second Edition. A Publication of the Josiah Macy, Jr., Foundation. Edited by E. V. Cowdry, Washington University, St. Louis. Baltimore: The Williams and Wilkins Company. 1942. Price $10.00.

This book is now in second edition and features biological and medical aspects of the gradual but inevitable process of growing old. Outstanding are editorial staff and contributors. The foreword is illustrative of its tenor, by Dr. John Dewey in the first edition; by Lawrence Frank of Josiah Macy, Jr., Foundation, in the second edition. Of the other thirty-four contributing authorities of merit, examples are: Edgar Allen, Llewellys Barker, A. J. Carlson, A. C. Ivy, H. S. Jennings, E. B. Krumbaar, E. J. Stieglitz and others of distinguished ability. Collaboration of these scholars for a period of years preceded publication of this comprehensive study of life, detailing observations on unicellular organisms up to man. No single volume known to this reviewer so fully, so clearly and scientifically covers this field.

"In his introduction to this volume, a great American philosopher, Professor John Dewey, has discussed briefly, but in a most admirable manner the biological bases of the ageing process on the one hand, and the social and educational aspects of that process on the other. His introduction should be read by every practicing physician." (Barker.)

The plan and purpose of the symposium is to correlate what is known in the process of ageing in various forms of life: plants, protoza, insects, lower vertebrates and finally man. The processes of ageing are ably discussed in various systems of the human body: cardiovascular, blood and lymphatic systems, respiratory, digestive, urinary, skeletal and locomotor, dental, dermal, endocrine, reproductive of both sexes, nervous and special senses.

The physiologic and psychologic problems arising with the ageing process in man are discussed, with a study of psychologic guidance with progressing age and the changes in personality that may occur. The point of view of the clinician is presented by Dr. Barker and prophylaxis and treatment in the aged is the contribution of Dr. Mueller-Dehann. Stieglitz presents finally the social urgency of research in the ageing group in a convincing discussion. Here, then, is a series of contributions to gerontology deserving the study of the physician, the biologist and the sociologist.

What is the life span of man? Approximately 100 years. Or the life expectancy? Maximum average about 65 years in Sweden. What factors dominate in producing a man ageing to 100 years, heredity or environment (i.e. food, hardship, slow growth, temperate zone)? It is stated in effect that approach to the life span of 100 years is favored by marriage, descent from healthy long-lived parents and grandparents . . . moderation and regularity in conduct of life, cheerfulness, occupation until a very ripe age and retardation of retirement. It does not depend on wealth, or urban or rural residence. All seem to agree that long-lived families have heredity as the dominant factor, environment perhaps a recessive character. How long one lives is proportioned on how fast one lives, and in line with this how long we live "not years but actions tell." Some are ageing in the forties, others in the sixties. The text finds little hope for longevity through gland transplants, but impresses that continued interests and occupation in those who are ageing encourage long life. The text recounts that great contributions have been made by scientists, artists, physicians, statesmen, who are well past 70 or 80.

Length of life then, is a matter of relativity. When is a man old? Though not stated in this text, one of our popular writers has stated in effect that a man is old when he is twenty years your senior, and that goes from 7 to 70. From unicellular organisms of a few hours, to the "Big Tree of Tule," possibly 7,000 years old, is only a matter of relativity. The only mammals to exceed 50 years of age seem to be the Asiatic elephant, the horse and man.

Every physician is growing older—along with all his patients. The problems of ageing are legion; their solution is difficult. This book will be enlightening to those who read and learn. W. A. M.

Rehabilitation of the War Injured. A symposium. Edited by William Brown Doherty, M.D., and Dagobert D. Runes, Ph.D. New York: Philosophical Library. 1943. Price $10.00.

The entire field of reconstructive surgery is covered in more or less detail with emphasis upon plastic operative procedures about the face.

A number of chapters are devoted to neurology and psychiatry as they pertain to head injury. There is a very good chapter on malingering by Donald C. Norris, M.D., F.R.C.P. of the Inner Temple, Barrister-at-law, Chief Medical Officer Metropolitan Water Board, London; Medical Officer, Book of England.

A chapter on "Sequelae of War Head Injuries" by D. Denny-Brown, M. B., D. Phil, F. R. C. P., Professor of Neurology, Harvard Medical School, is excellent and will no doubt be referred to by many dealing with head injuries in civilian industrial practice.

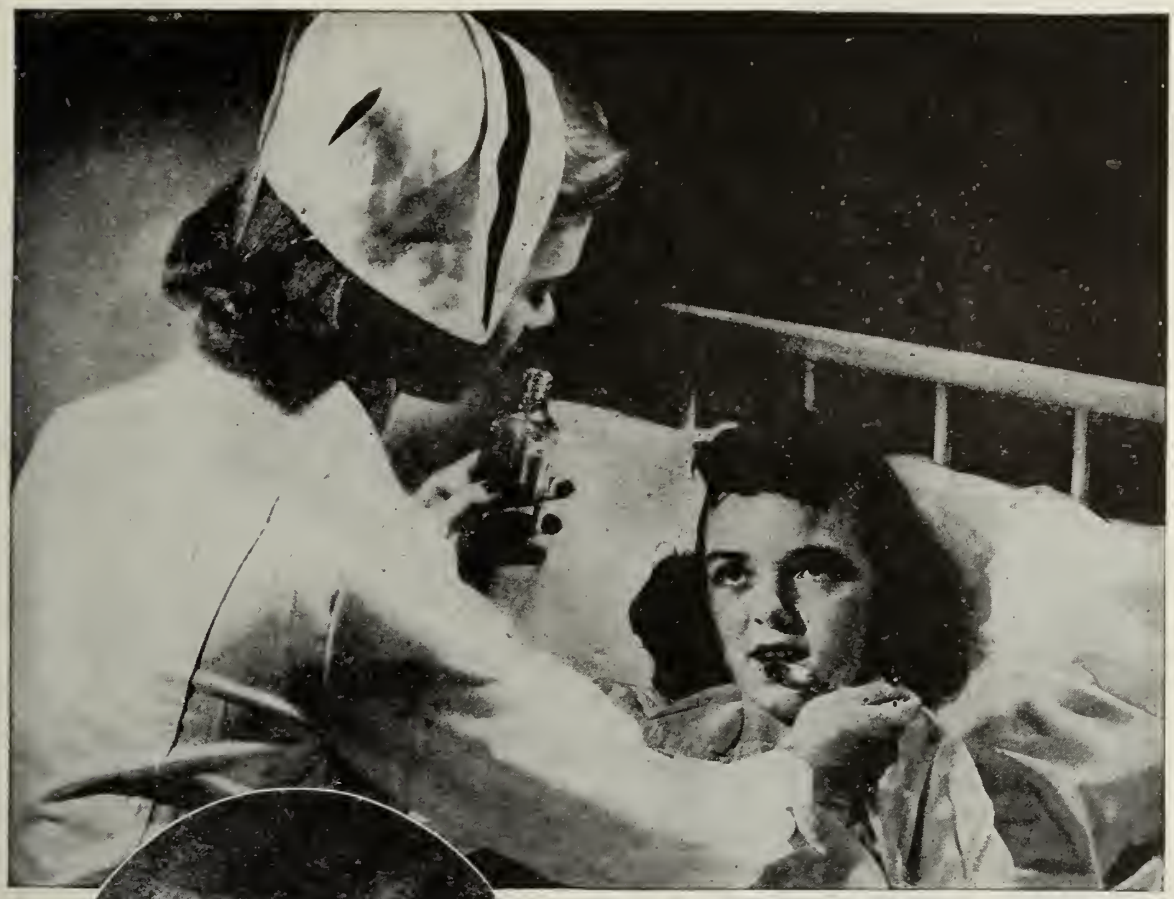
The authors acknowledge their gratitude to the publishers and editors of the *American Journal of Surgery* for permitting the republication of much material on leg lengthening, jaw reconstruction, correction of scars and several articles on plastic facial surgery.

Likewise thanks are acknowledged for assistance in republication from the *New England Journal of Medicine*, the *Medical Bulletin of the Veterans' Administration*, the *Military Surgeon*, the *Archives of Ophthalmology*, the *British Medical Journal*, the *Journal of the American Medical Association* and fully a dozen other domestic and foreign periodicals and books.

The subjects of physiotherapy is given excellent treatment as are occupational therapy and vocational guidance. Even legal aspects of rehabilitation with a chapter on compensation for injuries is covered adequately.

Aftercare of amputations, leg lengthening and arthroplasty of the hip take up the space devoted to orthopedics.

On the whole this volume is a worthwhile addition to a library and contains most of the best in ideas from authorities up to the spring of 1943. It will, we trust, be followed by a similar symposium with more American authors, covering experience of the past year or eighteen months. E. P. H.





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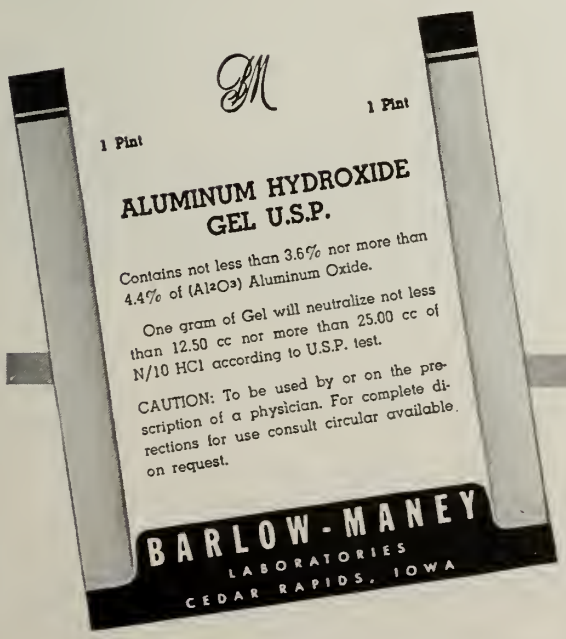
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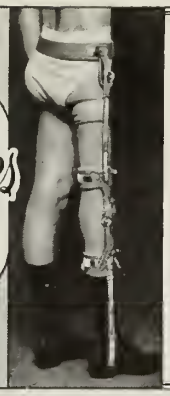
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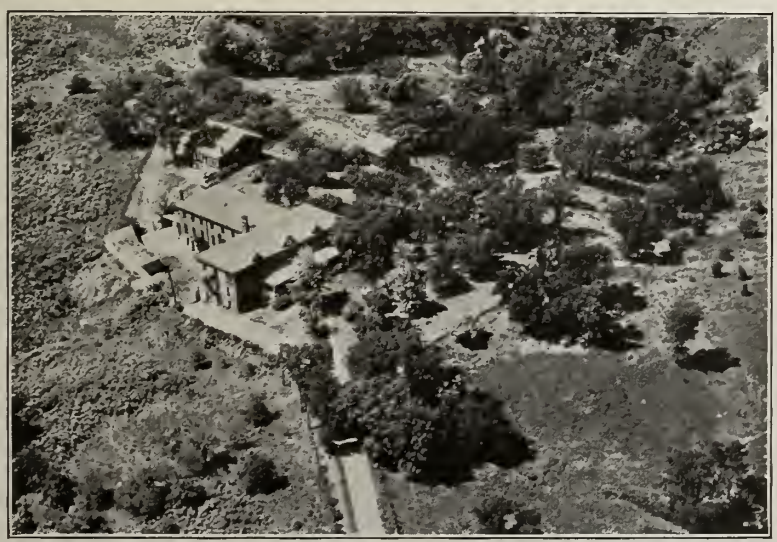
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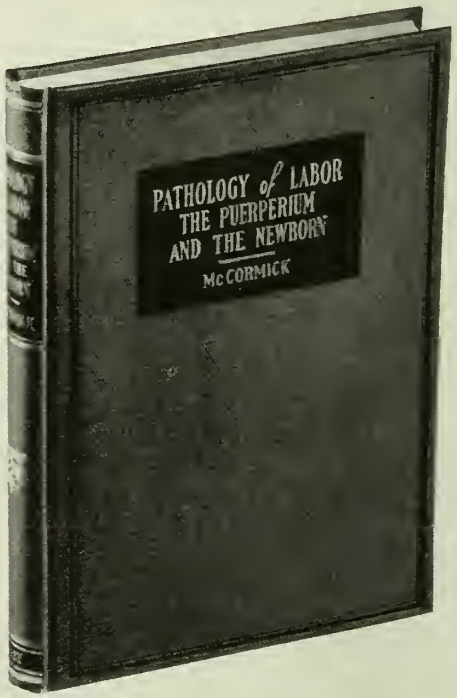
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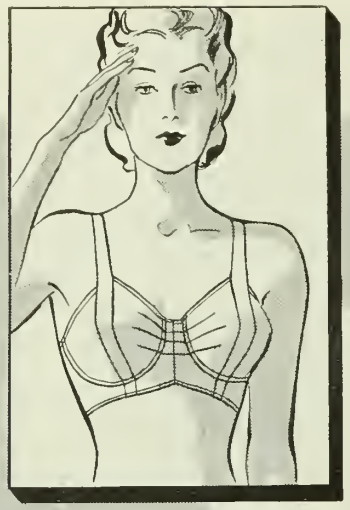
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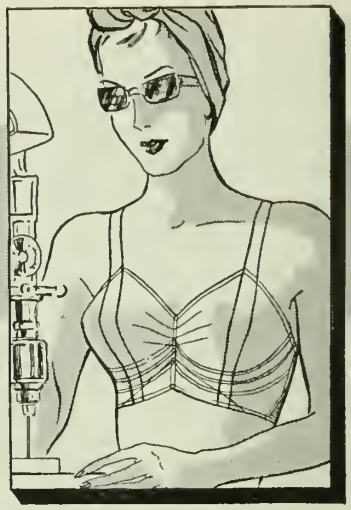
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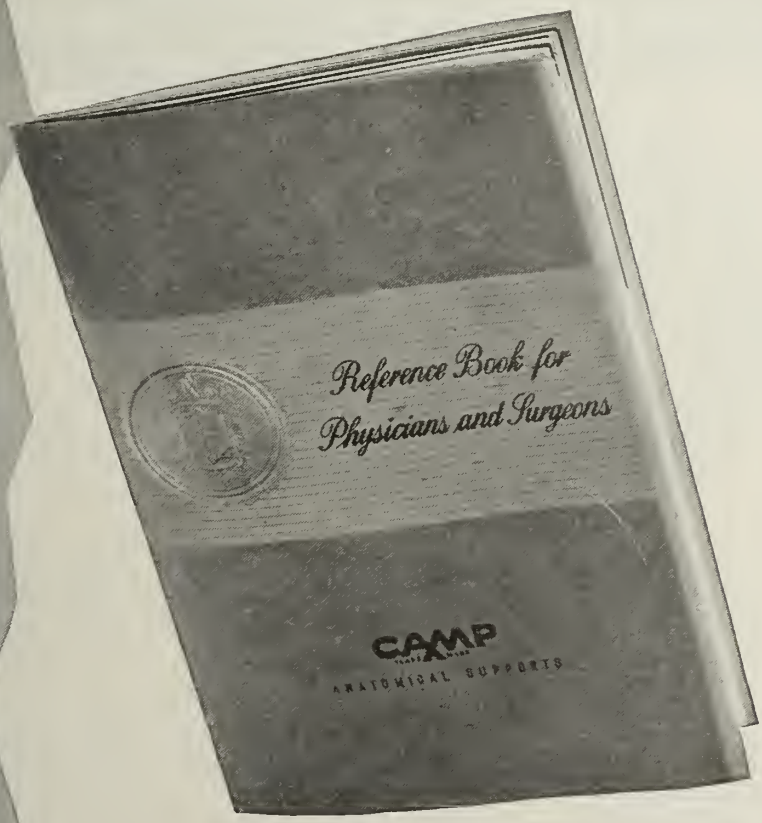
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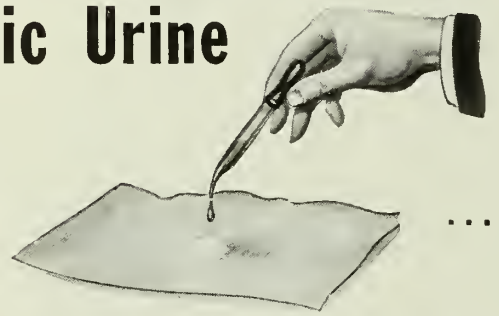
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*R. H. Follis, D. Jackson, M. M. Eliot, and E. A. Park: Prevalence of rickets in children between two and fourteen years of age, Am. J. Dis. Child. 66:1-11, July 1943.

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The Hospital Care of Communicable Disease Patients

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Case Reports of Barnes Hospital

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(Contents Index Page 5)

ANNUAL SESSION, APRIL 22, 23, 24, 1945





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Spanning hundreds of miles of ocean, these life-saving directions of a Navy doctor in Hawaii were carried by radio to a small vessel "somewhere in the Pacific" on which a seaman lay unconscious. A stethoscope over the patient's chest with ear pieces pressed close to the microphone had made it possible for the physician to hear the breath sounds and heartbeat in Honolulu.

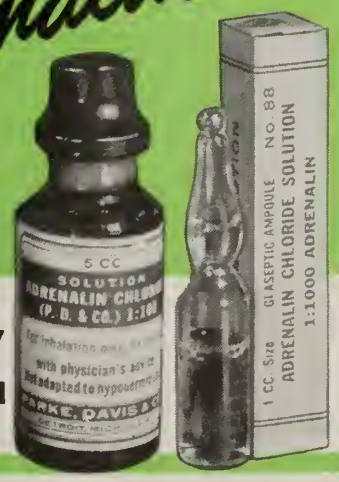
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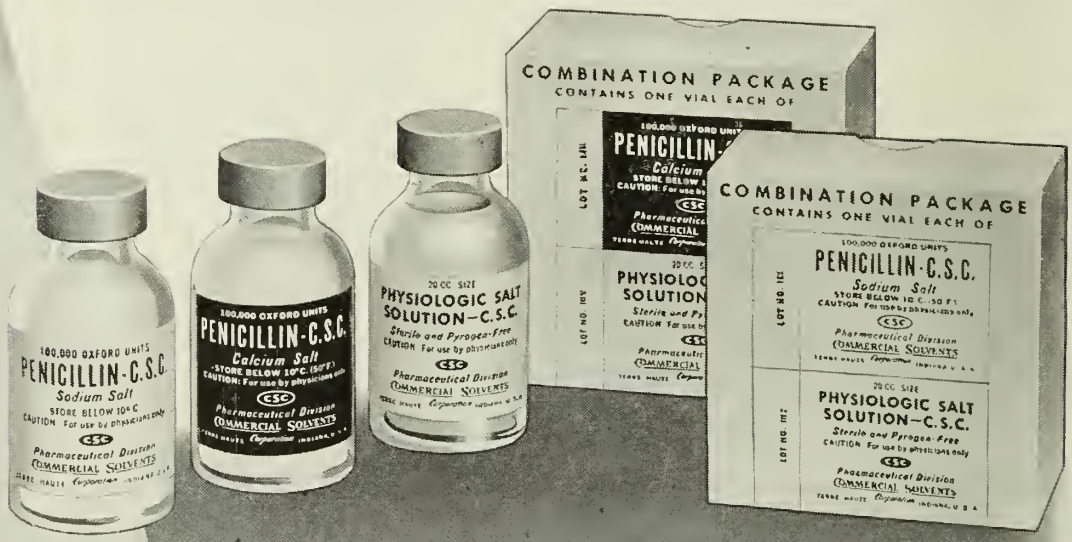
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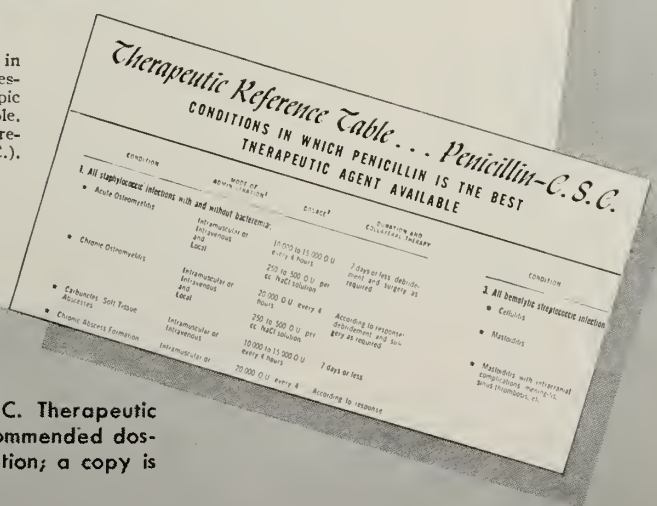
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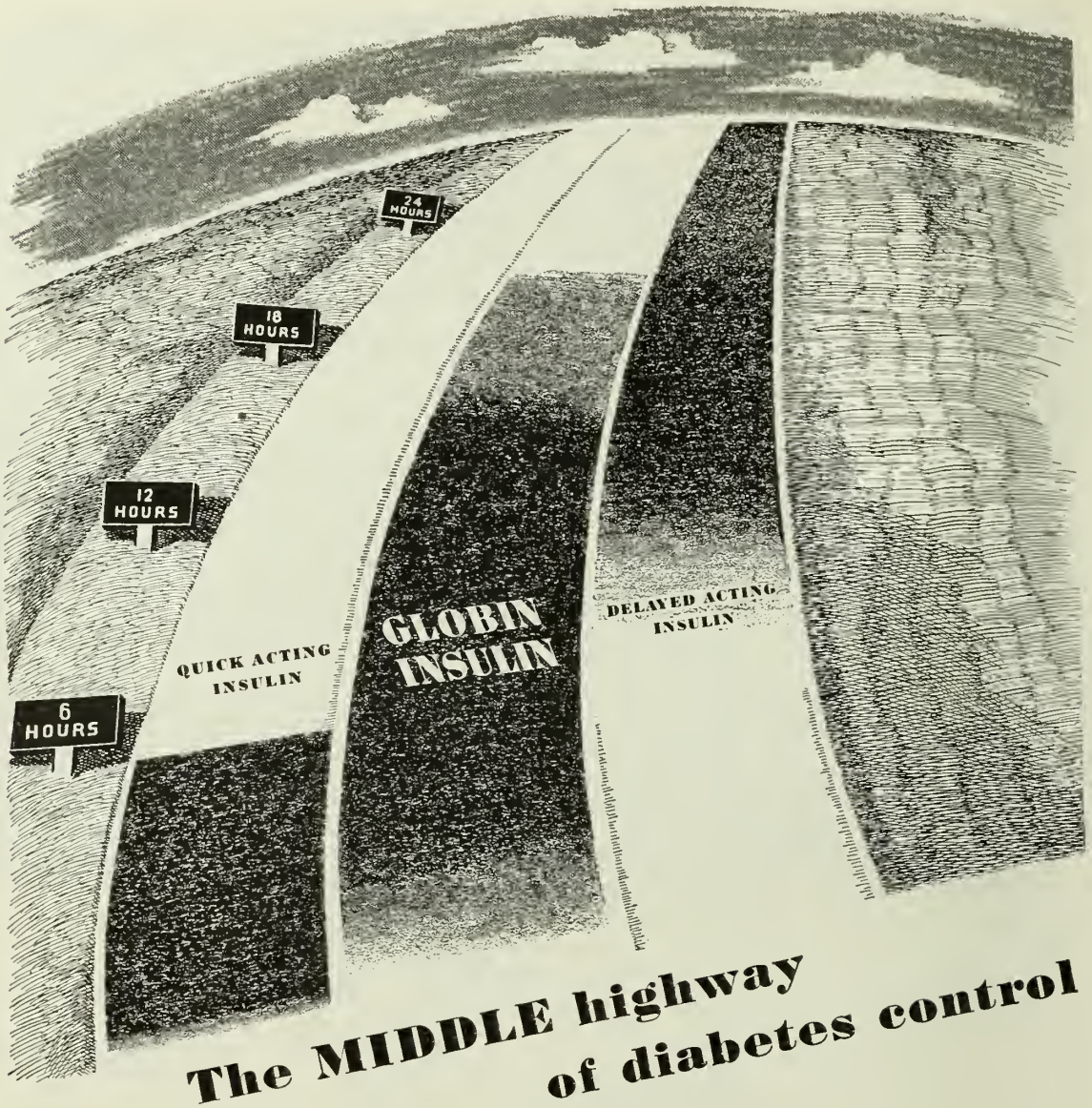


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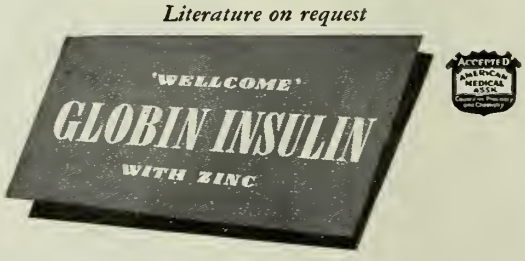
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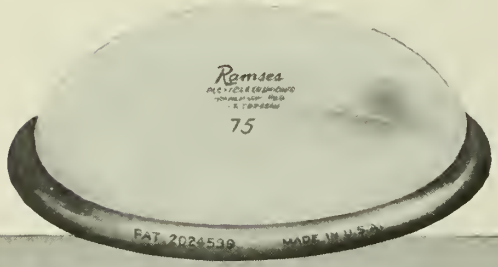
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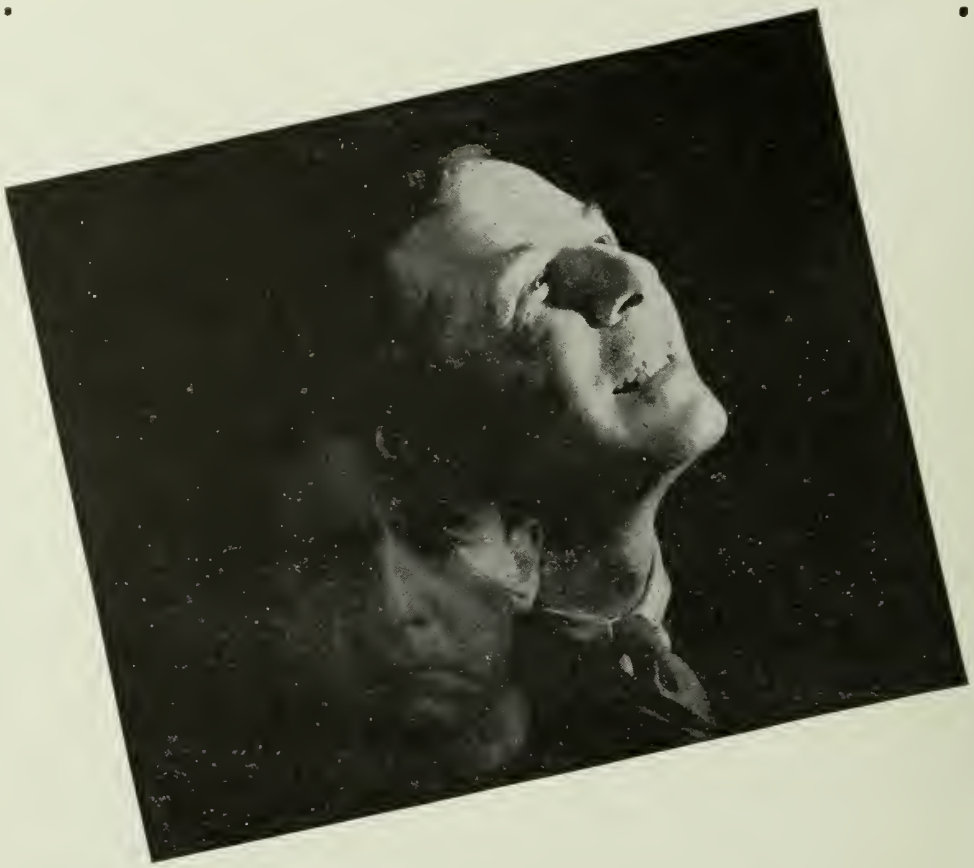
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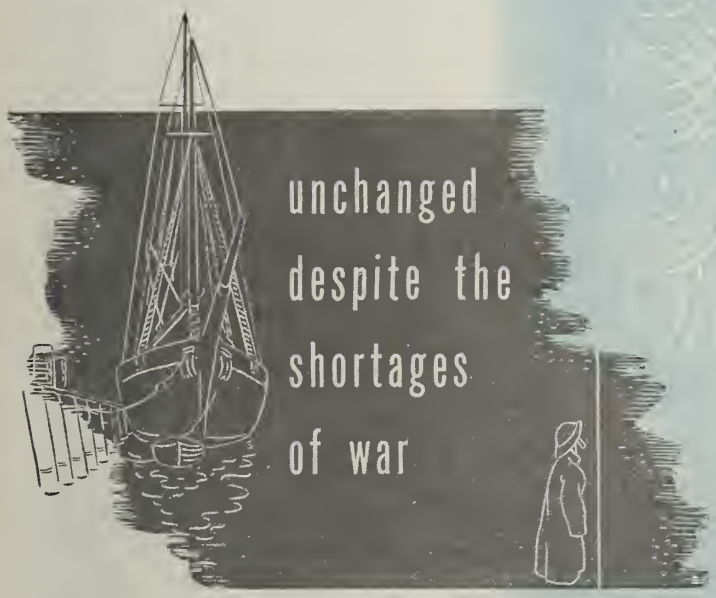


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*Reiter, P. J., Experience with Benzedrine, Ugeskr. f. laeger, 99:459-460, 1937.

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THE HOSPITAL CARE OF COMMUNICABLE DISEASE PATIENTS

RICHARD W. MAXWELL, M.D.
ST. LOUIS

It was natural that the early discoveries in the fields of bacteriology and contagion should have caused communicable diseases to be excluded from general hospitals. Present knowledge of the principles of medical asepsis, together with the development of methods for the creation of immunity to many infectious processes, should cause earlier views now to be modified somewhat on isolation practices. The conception that proper isolation implies a great distance between the patient and the community is antiquated, but is none the less responsible for the current practice which in general approves only one of two procedures: (1) isolation of the patient in his own home, or (2) admission of the patient to a specialized contagious disease hospital.

The majority of the more common contagious diseases can be managed safely in the home by the physician. Hospitalization is imperative for the proper management of the more serious infections, however. For this reason every community should have hospital facilities for contagious disease patients. It is no secret that such isolation units are available actually only to residents of the larger metropolitan areas. The result has been that many patients have been denied the advantages of hospitalization because the community could not afford an isolation hospital. This is a problem of long standing.

Within the last decade a new problem in regard to the care of communicable disease patients has become increasingly apparent. The majority of the epidemic diseases are being reduced to endemic proportions by specific prophylatic measures, better facilities for sanitation and the new drugs, sulfonamide and penicillin. Isolation hospitals that were once profitable institutions are now becoming expensive to operate because of the steady decline in admissions. In certain localities where inadequate facilities had existed for the care of patients with pulmonary tuberculosis and venereal diseases, the problem has been met by assigning these patients to the empty space of isolation units. However, these measures probably have only temporary value.

The accompanying graph has been constructed to emphasize the steady decline in incidence of five contagious diseases of major importance in St. Louis between 1930 and 1943. The single heavy line is the total of all reported cases of diphtheria, scarlet fever, smallpox, typhoid fever and meningococcal meningitis during this thirteen year period. Prior to 1930 the St. Louis Health Department did not keep separate the nonresident cases hospitalized in St. Louis, but if the figures were available the curve would doubtless show a more dramatic decline from the second and third decades of this century. The broken line on the graph represents total admissions, of the diseases listed, to St. Louis Isolation Hospital during this same period. It may be seen that the hospital admissions have decreased about one half.



Fig. 1. Graph showing total resident cases reported and corresponding admissions to St. Louis Isolation Hospital of five major contagious diseases (diphtheria, scarlet fever, smallpox, typhoid fever and epidemic meningitis) during the period 1930 to 1943.

From the St. Louis City Department of Public We'fare (Isolation Hospital) and the Department of Internal Medicine, Washington University.

The object of this paper is to suggest that isolation of contagious diseases in the future be taken over increasingly by general hospitals, and to show that such a change in attitude toward these diseases would not be dangerous to other patients or to hospital personnel. Four purposes could be served by these isolation units within general hospitals:

1. Adequate care of contagious disease patients in areas that are now unable to support an isolation hospital.

2. In communities in which contagious diseases have decreased to a minimum, it would no longer be necessary to keep a costly isolation hospital in operation.

3. Adequate private patient care could be given, this being difficult to supply in a tax-supported communicable disease institution.

4. The medical and nursing personnel of general hospitals would profit greatly from the experience gained in seeing and managing these patients.

The only apparent disadvantages of allowing general hospitals to care for communicable diseases would be:

1. The expense involved in setting up and operating an isolation unit.

2. Danger to other patients and hospital personnel in the possibility of the transmission of disease.

These objections are not valid ones and deserve comment. The matter of the expense of setting up and operating a small contagious disease unit within a general hospital is overemphasized easily. Little special equipment is required and the only strict necessity is the allocation of a group of rooms to this specific purpose, the unit preferably being off to itself and reasonably close to an elevator. The nursing and medical personnel would, of course, be familiar with and carry out the simple principles of medical asepsis.

The question of the danger of communicating contagious diseases from patients in an isolation unit to patients and personnel outside the unit would be regarded as a major problem by those in charge of private hospitals. That this is not a real danger is suggested by the fact that during a four year period at the St. Louis City Isolation Hospital, not a single serious cross infection has been recognized, nor has any employee contracted a serious disease from his contact with patients. During this four years isolation ritual has been reduced to a very simple minimum until a procedure has been evolved that could be carried out in any hospital.

If the effectiveness of isolation were in direct proportion to the distance the patient is removed from other patients, then the individual who enters an isolation hospital should run a large risk of contracting other diseases from patients stationed close to him. It has been pointed out that evidence of such risk does not occur in actual practice. With three exceptions, communicable diseases are dependent on close personal contact for their transmission, or upon indirect means of dissemination of infective material.

It is true that three virus diseases are not dependent on intimate contact for transmission and cannot be controlled by usual isolation methods. These diseases are rubeola (measles), varicella (chickenpox), and variola (smallpox). In smallpox, the patient is infectious for at least three days before a diagnosis can possibly be made, so that isolation of the fully erupted patient is definitely a second best method of attempting to control the disease. Only systematic and thorough vaccination in a community can prevent epidemics. Smallpox is not feared in an isolation hospital, only because all patients and personnel are routinely vaccinated. If an occasional patient with smallpox were to be admitted to the isolation ward of a general hospital, all unvaccinated patients and personnel would need to be immunized at once. For the immediate future, compulsory vaccination would be carried out most easily in charity institutions, although there would be no logical reason why every hospital should not require smallpox vaccination as an admission routine.

Chickenpox is not a serious disease and the patient ill with it ordinarily is treated in his home. Since almost every person has varicella at some time during his life, usually in childhood, without harmful sequellae, isolation is not practiced in most communities. Because of the long incubation period of from 14 to 21 days, the disease frequently breaks out in pediatric wards, and is considered a nuisance rather than a real problem.

Measles constitutes the most real threat as far as cross infection is concerned. It is highly contagious, and almost everyone has the disease during childhood. The patients are not routinely isolated in St. Louis since the spread of the infection cannot be checked by isolation. The disease in its usual form is not serious, particularly since sulfonamides have become available for the control of secondary infections. Since most adults are immune, the problem of cross infection in a general hospital would be troublesome only within the isolation unit itself, or in any children's ward located in close proximity to the isolation ward. The problem would be scarcely any greater than it is at present because in epidemic years cross infections in pediatric wards everywhere are very common. Fortunately, serum is available for passive immunization of any child exposed to measles and seriously ill with another disease.

Although a complete review of isolation technic would not be appropriate in this paper, the following points are listed briefly as the only real needs for the creation of a satisfactory isolation unit. No attempt will be made to prove these points, but it is simply stated that such a unit is effective in actual practice.

1. The allotted rooms, equipped with wash ba-

sins, should be located within the hospital at some distance from the pediatric division, and must be placed so that hospital traffic would not pass through the unit. The elevator used to transport patients should be close by.

2. The utility room must be equipped with bedpan and utensil sterilizer and space for sorting contaminated linens.

3. Equipment for washing and sterilizing dishes within the unit must be provided.

4. An experienced physician should be made entirely responsible for the creation of rules on technic and a competent charge nurse should be responsible for the enforcement of the regulations set up. Such rules would include the handling of patients in the admitting room, precautions to be taken in moving the patient to the isolation unit, laundering of contaminated linens, visiting regulations and application of health department rules for the admission and discharge of patients.

As a concluding point in favor of the trend toward care of communicable diseases by general hospitals, it can be said that there are already many large hospitals throughout this country that have small or large isolation units in operation at the present time. The following list is not a complete one. Those hospitals marked with an asterisk have isolation wards but restrict admissions to a few specified diseases: Strong Memorial Hospital, Rochester, N. Y.; Barnes Hospital, St. Louis, Mo.; Albert Merritt Billings Hospital, Chicago, Ill.; New Haven Hospital, New Haven, Conn.; Johns Hopkins Hospital, Baltimore, Md.; *Massachusetts General Hospital, Boston, Mass.; *Boston City Hospital, Boston, Mass.; *New York City Hospital, New York.

SUMMARY AND CONCLUSIONS

There is increasing need in this country for the creation of isolation wards in general hospitals. Such units could be established at little expense. With competent medical and nursing supervision the danger of cross infection within the hospital would be negligible.

St. Louis City Isolation Hospital.

SOME OBSERVATIONS ABOUT HYPERTENSION

A. L. HANSEN, M.D.

APPLETON CITY, MO.

One of the most trying things that a physician is called upon to treat is hypertension. The cause of the illness is not well described and the treatment is hard to understand and, often times, the results are not satisfactory.

Arterial blood pressure is maintained by a number of factors, the most important of which are the force of the heart beat, the escape of blood through the arteries and the volume of the blood in the arteries.

The usual hypertension is, of course, due to increased resistance to the blood as it flows through the arteries and resulting demand on the heart for more force in order that the capillary fields may have the desired amount of blood.

Arterial sclerosis is a factor in that it is sometimes associated with hypertension, especially in cases of long standing, and is then contributary to the illness because it increases resistance in the arteries by making them more tortuous, less elastic and smaller on the inside. In cases of malignant hypertension, arterial sclerosis is one of the things that makes it an illness for which there is not much remedy; but the factor of constriction of the arterial walls in blood vessels that have not lost their elasticity present cases of hypertension which should mend to treatment.

It is well known that injecting procaine by the side of the lumbar vertebrae causing an anesthesia out of the sympathetic ganglia will lower arterial tension in the leg on that side and permit a better flow of blood to the capillary fields of that area.

Also a clinical syndrome is presented by swelling of and pressure on the brain associated with injuries within the cranial cavity whereby the blood pressure increases with a slow pulse indicating a rise in blood pressure due to increase in arterial tension which may be due to central nervous system stimuli but, probably, most of the increase in blood pressure is due to inhibition of the pituitary gland which also is contained within the cranial cavity.

Widely used in the treatment of hypertension are hypnotics such as the barbiturates and bromides. Because of the sleep they produce their effect on blood pressure is probably not direct but only indirect from effects which are conveyed from the central nervous system. Also they have little influence on the direct cause because they give, for the most part, only a temporary benefit.

These things permit one to think that essential hypertension is caused by stimuli conveyed from the sympathetic ganglia to the arteries, probably introduced to the sympathetic ganglia by hormones from the internal secretory glands, and, that hypertension may be brought about by unbalanced or undesirable internal secretion or inability of the sympathetic nervous system to interpret the stimuli or convey them properly to the muscle of the arteries.

Concerning this I have two cases to describe. One indicates that a hormone can have a direct effect on hypertension and the other shows that vitamins can have an effect which may be due to their influence on internal secretory glands or to their effect on the sympathetic nervous system, thereby making better interpretation and conduction.

REPORT OF CASES

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ability to work or take part in athletics. He gave a history of hypertension which was first noticed when he was 14 years of age. He was told it was then 180. During the preceding several years he had seen a dozen or more physicians and had had several basal metabolic rates run which he was told were all normal. When I first saw the patient he had a blood pressure of 260/110 and his pulse rate was 100. Physical examination showed the patient otherwise essentially normal. He was seen several times and was given the usual treatment for hypertension with little improvement. He was then given antuitrin S, 100 units. He came in a few days later and said he had had no headache since he was given antuitrin S and that he felt much better. His blood pressure was 200/90. Again he was given 100 units of antuitrin S and was told to come back in two days. After two weeks of such treatment his blood pressure was 120/70. He said he felt good and that he was able to ride his bicycle and take part in athletic activities as he had never been able to do before. The elevation of blood pressure returned when treatment was discontinued.

The other case was a woman aged 55 who gave a history of having had high blood pressure for several years and during that time she had been treated most of the time. Her physical examination was essentially normal except that her blood pressure was 240/110. She was given barbiturates and DaCosta's formulae for a time with some improvement. Because of a neuritis which she developed she was given a vitamin B complex orally and the same intramuscularily two times a week. Her blood pressure started decreasing. The barbiturates and DaCosta's formulae were discontinued. Her blood pressure continued to decrease. After three months her blood pressure was 150/90 with considerable improvement in her ability to work. It was noticed in further treatment that vitamin B complex orally did not have nearly as good effect as vitamin B complex intramuscularily.

This article is written with the thought that these hypotheses and information may be helpful to those who are interested in hypertension and that it may lend some light in finding a suitable synthetic or glandular product for use in the treatment of hypertension.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M. D., and ROBERT A. MOORE, M. D., Editors

CASE 61

PRESENTATION OF CASE

L. S., a 63 year old white widow, entered Barnes Hospital on November 1 and died November 10, 1944.

Chief Complaints.—Swelling of the neck, shortness of breath and indigestion.

Family History.—One sister and one brother died following strokes.

Past History.—The patient had been a housemaid for many years and had had little illness since childhood until three years before admission. She then developed attacks of severe pain in the right upper abdomen which were soon followed by jaundice. Similar attacks occurred periodically thereafter but jaundice was not repeated. Pain was relieved sometimes by soda bicarbonate but, occasionally, hypodermic injections were required. Bloating, belching, loss of appetite, headaches and dizziness occurred frequently between the acute attacks. There had been a weight loss of 34 pounds and the patient felt too ill to work. During this period she ate sparingly and irregularly.

Present Illness.—In April 1944 the patient noted that her face was swollen. In June she developed a choking sensation, only on bending forward. At that time she believed that she felt a lump in her neck just above the inner end of the left collar bone. It was about the size of a half dollar. Some itching of the skin of the upper anterior chest had been present since onset. Gradually the swelling of the face increased and then receded somewhat. The mass in the neck became larger, choking on bending forward or on rising up in bed was provoked more easily and a drawing sensation in the chest on raising the right arm (but not the left) appeared.

Physical Examination.—Temperature was 37.8 C., pulse 104, respiration 44, blood pressure 170/78. The patient was in no apparent distress. She appeared to have lost some weight. The complexion was somewhat sallow and the mucous membranes pale. Facial edema was not recorded. The pupils reacted normally and the fundi showed no changes. The mouth was edentulous. There was slight adenopathy of the cervical lymph nodes. There was distention of the veins on the right side of the neck and also of some of the superficial venules over the thorax. A soft pliable mass was felt just below the larynx extending across the neck and down to the clavicle on the left. It seemed to bury itself bilaterally beneath the sternocleidomastoid muscles. The mass was not tender. The trachea was in the midline and there was no tug. The thorax was symmetrical. The lungs revealed no abnormal findings; no widening of the upper mediastinum was recorded although one observer noted slight dulness with suppression of breath sounds and increased whisper at the left apex where the breath sounds were bronchial in quality. The heart was slightly enlarged to the left and a gallop rhythm was present. The radial arteries were thickened. There was a round, firm, tender mass in the left upper quadrant which descended on inspiration. This was considered to be either the spleen or the left kidney. The liver edge was not felt but was percussed just below the costal margin. There was no peripheral edema.

Laboratory Findings.—Blood count: red cells 4,180,000, hemoglobin 12 gms., white cells 4,950, differential count: basophils 2 per cent, eosinophils 2 per cent, "stab" forms 1 per cent, segmented forms 81 per cent, lymphocytes 14 per cent. Urinalysis showed albumin 2 plus. Blood chemistry: sugar 83 mg. per cent, nonprotein nitrogen 16 mg.

per cent, cholesterol 240 mg. per cent. Kahn reaction was doubtful. Venous pressure (right arm) was 130 mm. H_2O. Circulation time (procholin) was 28 seconds. Vital capacity was 1,900 cc. Basal metabolic rate was plus 18 and plus 27 per cent. Electrocardiogram showed left bundle branch block. Roentgenogram of the chest was reported as "small inferior anterior mediastinal tumor which does not compress the esophagus."

Course in Hospital.—After consultation with Dr. Graham it was decided to perform an exploratory operation. A thyroid incision was made and the gland was found to be from two to three times its normal size but it did not extend down into the chest. It was soft and smooth without nodules and did not appear to cause compression of surrounding structures. Exploration of the mediastinum revealed a ridge of firm tissue extending 2 inches below the manubrium. The entire mediastinum appeared to be frozen by an infiltrating tumor. Throughout the procedure, very marked engorgement of all the vessels occurred and bleeding was difficult to control. At one stage, the blood pressure disappeared and the pulse became very feeble. No biopsy was taken due to the patient's poor condition. She remained in poor circulatory condition and despite transfusions and other emergency measures, died a few days after the operation.

CLINICAL DISCUSSION

Dr. W. Barry Wood, Jr.: This case presents several interesting features for discussion. First, there was some type of mediastinal tumor. Second, there was enlargement of the thyroid gland associated with an increase of the basal metabolic rate, a tachycardia and an increase of pulse pressure. Third, there were a mass and pain in the left upper quadrant of the abdomen. And, fourth, there was a history of pain in the right upper quadrant with jaundice. All of these features were noted at some time during the last three years of life. We may begin the discussion by considering the mediastinal tumor which was the essential feature. Dr. Goldman, what are the commonest mediastinal tumors?

Dr. Alfred Goldman: The most common primary tumors of the mediastinum are dermoid cysts, teratomas, tumors derived from the elements of the nervous system, fibromas, lipomas and lymphosarcomas. Metastatic tumors are most commonly derived from primary carcinoma of the bronchi.

Dr. John Smith: May I add to that list a space consuming lesion which is not a neoplasm, an aneurysm of the aorta?

Dr. Wood: Dr. Poppy, would you tell us something about the relative incidence of tumors in the posterior mediastinum?

Dr. Carl Poppy: The neurofibroma is the most common tumor in the posterior mediastinum. It may be either benign, as a neurofibroma, or malignant, as a neurogenic sarcoma. They arise from the sympathetic ganglia or from the intercostal nerve. They are really tumors of the thoracic wall but they project into the posterior mediastinum.

Dr. Wood: What other tumors arise in the posterior mediastinum?

Dr. Poppy: Rarer forms are sarcoma, aneurysm, fibroma and bronchogenic cyst.

Dr. Carl V. Moore: Are metastatic tumors found more frequently in the posterior mediastinum or in the anterior mediastinum?

Dr. Poppy: They are observed most frequently in the posterior mediastinum. This is probably because of direct extension from the most common primary site, carcinoma of the bronchus.

Dr. Wood: In this particular patient, Dr. Goldman, where was the tumor?

Dr. Goldman: Apparently in the anterior mediastinum. I believe that we can rule out the dermoid cyst, a tumor of the thyroid and thymus, a tumor of the thoracic wall and an aneurysm. We are thus left with a diagnosis of either carcinoma of the bronchus with extension to the mediastinum or a lymphosarcoma. Against the diagnosis of lymphosarcoma is the age of the individual. In favor of carcinoma of the bronchus is the fact that there was some sort of lesion in the right apex.

Dr. Wood: Dr. Poppy, you saw this tumor at the time of operation. What was your diagnosis?

Dr. Poppy: My impression was that it was some type of sarcoma.

Dr. Wood: Dr. Moore, how would you differentiate between a lymphosarcoma and a thymoma?

Dr. Carl V. Moore: I know of no reliable methods except by a biopsy.

Dr. Wood: A biopsy was not taken in this case. What would be seen in a microscopic section to allow a differential diagnosis?

Dr. Carl V. Moore: In the true thymoma there are differentiation and orientation of the cells to form Hassal's corpuscles. On the other hand, there are many lymphosarcomas which apparently arise in the thymus.

Dr. Wood: Dr. Sherwood Moore, what is your opinion on the basis of the radiographic observations?

Dr. Sherwood Moore: I think that the tumor in the mediastinum is a metastatic carcinoma.

Dr. Edward Massie: I would favor a diagnosis of carcinoma of the bronchus.

Dr. Wood: Dr. Moore, what would be the usual clinical course of a patient with a lymphosarcoma of the thymus or of the anterior mediastinum? How long would the patient live after the establishment of the diagnosis?

Dr. Carl V. Moore: The life expectancy is extremely variable but I would imagine that most patients would die of the disease in less than a year. I have, however, seen some patients with lymphosarcoma of the anterior mediastinum treated with radiant energy who have lived for two or two and one half years. In the absence of any specific treatment the life expectancy would not exceed a year.

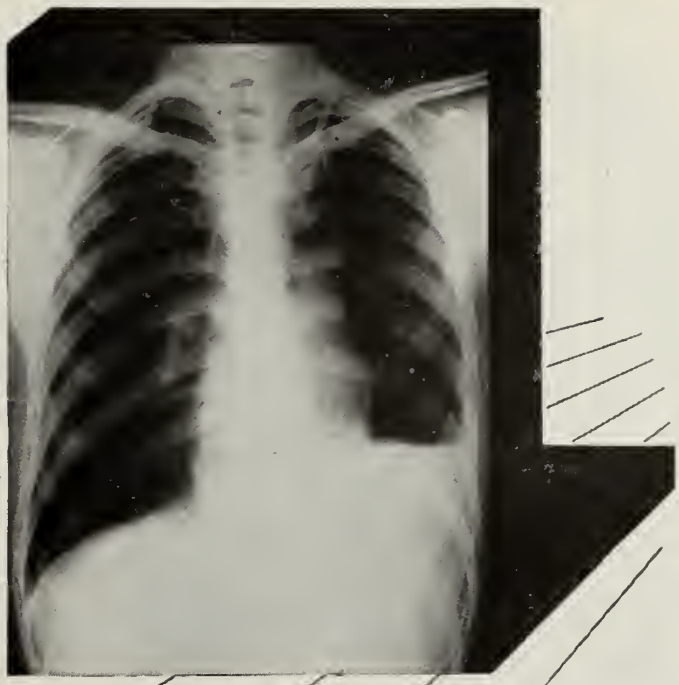
Dr. Wood: Some authorities state that it is dangerous to radiate a tumor of the thymus because of the possibility of producing leukemia. Dr. Moore, what is your opinion of that statement?

Dr. Carl V. Moore: I do not believe that there is any evidence to support that idea. If a tumor of the thymus is associated with leukemia, it is leukemia from the start and hence radiation will not change the nature of the disease. I believe that the treatment of choice in these patients is with radium energy.

Dr. Wood: Dr. MacBryde, how do you explain the enlarged thyroid gland?

Dr. Cyril MacBryde: I do not believe that it is due to hyperthyroidism in spite of the increase in the basal metabolic rate. I am not able with the evidence at hand to determine the exact type of pathologic change in the gland.

Dr. Carl V. Moore: The thyroid gland may be involved in lymphosarcoma and thus produce an enlargement of the organ. If this were the situation, the patient did not have true hyperthyroidism. The increase in the basal metabolic rate could be explained by the presence of a rapidly growing tumor such as a lymphosarcoma.



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DR. WOOD: The consensus seems to be that the patient did not have true thyrotoxicosis despite the observation of an enlarged thyroid gland. Dr. Sale, you examined the mass in the left upper quadrant of the abdomen while this patient was on the ward. What was your opinion of it?

DR. LLEWELLYN SALE, JR.: The abdomen was difficult to palpate but the mass was rounded, firm, smooth and could have been either the lower pole of the kidney or the spleen.

DR. WOOD: If it were the spleen, Dr. Reinhardt, how would you explain its enlargement in this patient?

DR. EDWARD H. REINHARDT: Enlargement of the spleen is consistent with a diagnosis of either leukemia or lymphosarcoma.

DR. CARL V. MOORE: I agree that it was probably spleen. The mass might have been a normal kidney that was palpable, or a tumor of the kidney. The latter possibility is most unlikely since it does not fit in with the remainder of the observations on the patient.

DR. WOOD: Dr. Scheff, this patient had an attack of pain in the right upper quadrant of the abdomen and an attack of jaundice. What is your interpretation of these symptoms and signs?

DR. HAROLD SCHEFF: I would suggest that she had some disease of the gallbladder. A patient at this age might well develop a carcinoma of the gallbladder.

DR. WOOD: Have you ever seen, Dr. Poppy, a metastatic carcinoma of the mediastinum from a primary lesion of the gallbladder?

DR. POPPY: No.

DR. SCHEFF: I agree that the more likely diagnosis is a chronic cholecystitis and cholelithiasis.

DR. WOOD: Do you believe, Dr. Scheff, that this patient had biliary cirrhosis?

DR. SCHEFF: She should have had more jaundice with biliary cirrhosis.

DR. WOOD: The patient also had certain signs pointing to disease of the heart. There were slight tachycardia, a wide pulse pressure, a gallop rhythm and a bundle branch block as shown in the electrocardiogram. Dr. Smith, how do you explain these observations?

DR. JOHN SMITH: I believe that they are all consistent with moderate sclerosis of the coronary arteries with focal fibrosis of the myocardium.

DR. WOOD: In summary, there seem to be two possible major diagnoses: carcinoma of the lung with metastasis to the anterior mediastinum, or a lymphosarcoma of the anterior mediastinum probably involving the thymus gland. In addition, this patient had slight to moderate arteriosclerosis and some abnormality of the gallbladder. The mass in the left upper quadrant was probably the spleen. The patient did not have thyrotoxicosis from a primary disease of the thyroid gland but, rather, this organ was involved in the neoplastic process.

ANATOMIC DIAGNOSIS

Carcinoma of the apex of the right lung.

Metastases of carcinoma to all lobes of the lungs, to the bronchopulmonary and tracheobronchial lymph nodes and to the right lobe of the liver.

Extension of carcinoma to parietal pleura (right) and to the mediastinum.

Compression of the lumen and invasion of the wall of the superior vena cava by carcinoma 4 centimeters above the right auricle.

Compression of the pulmonary artery to the upper lobe of the right lung by carcinoma.

PATHOLOGIC DISCUSSION

DR. EDWARD BURNS: At the postmortem we found nothing on the surface of the body that was remarkable except the surgical incisions. In the viscera, primary lesions were found in the thoracic cavity. In the apex of the right lung there was a tumor mass which was approximately 4 centimeters in diameter. It lay close to the pleural surface which it had involved and the pleura over this area was thickened. There were extensions of this tumor to the bronchial pulmonary lymph nodes and to some of the tracheobronchial lymph nodes. In the mediastinum, some of the nodal metastases had invaded beyond the capsule and formed a mass measuring approximately 4 centimeters in diameter. This mass had surrounded the superior vena cava and compressed that vessel as well as invaded the wall so that the lumen was almost entirely obliterated. I think that this obliteration of the superior cava explains many of the clinical symptoms this patient had. It certainly explains the dilatation of the veins in the neck and it may offer an explanation for the masses felt in the neck which were described as soft, pliable and relatively nontender. Those might very well be the inomominate veins, or subclavian or internal jugular veins. It might also explain in part the enlargement of the thyroid on the basis of passive venous congestion in that gland. The operative note mentions that hemostasis was difficult and that must have been due to back pressure through those venous channels.

In addition to these tumor masses, there were smaller nodules distributed all through the lobes of the lung measuring several millimeters in diameter and there were also similar subpleural metastatic nodules scattered over all of the pleural surfaces. There were adhesions between the parietal and visceral pleurae in many locations and there was bloody fluid present in each pleural cavity, 800 cc. in the right and 200 cc. in the left. Our histologic study leads us to believe that this is a primary carcinoma of the lung and, as such, it is located in an unusual place. As you know, perhaps 90 per cent of carcinomas of the lung occur in the main bronchi or in divisions of the main bronchi. It may be that the abnormal location is the reason for the difficult diagnosis because we know that primary tumors of the lungs occurring in these locations produce secondary changes in the lung tissue—infections of all kinds such as bronchiectasis, lung abscess, pneumonia, atelectasis, emphysema—all produced by tumors largely on the basis of obstruction in the bronchial tree. Since this tumor arose in this region and very likely, we believe, developed from smaller bronchi rather than one of the large ones, those symptoms were absent and the clinical history was not so clear.

We have here a tumor located in the apex of the lung. What can we say in regard to this being a Pancoast or superior pulmonary sulcus tumor? The original description of this tumor included a great many clinical signs and symptoms. These were pain, Horner syndrome and paralysis of the arm on the affected side. None of those signs were present in this patient. On that basis, we should exclude the original description. Furthermore, we have come to believe that most of these tumors are probably carcinomas of the apex of the lung similar to the one that we have here. The typical case invades upward and outward into the neck and thus produces these symptoms. Since the tumor in this patient did not spread in this fashion, we shall not call it a Pancoast tumor. In the rest of the organs we found things that were related to the clinical course of the patient. There was sclerosis of the coronary arteries but it was very moderate. From the pathologic study we would not have suspected that this patient had signs of coronary disease. There was also chronic cholecystitis. The gallbladder wall was thickened and it contained several stones. The common duct was dilated, although there was no obstruction demonstrated. The thyroid gland was not large, weighing 34 grams; the capsule was intact and it seemed on gross study to be entirely normal. There were no changes in any of the other organs. We did not find a large spleen or kidney on the left side so we have no pathologic explanation for the mass which was felt in the upper left quadrant.

CASE 62

PRESENTATION OF CASE

A 57 year old white electrician entered Barnes Hospital on the surgical service on September 27 and died on October 6, 1944.

Chief Complaint.—Diarrhea, vomiting and abdominal pain.

Family History.—Irrelevant.

Past History.—Since childhood the patient apparently had been in good health. About six months before admission to the hospital he had some pain over his heart. He was examined at that time and was told that his heart was normal. He was always obese and for years had weighed more than 200 pounds. His appetite always had been excessive and his wife maintained that he would overeat constantly.

Present Illness.—For from two to three months previous to admission, the patient had frequent episodes of cramping abdominal pain followed by diarrhea. At such times he would take salts, after which he maintained that he felt better. The onset of these attacks dated back to a day following attendance at a carnival. The attacks occurred almost weekly and were associated with bloody stools. For these attacks he finally entered the St. Louis City Hospital, three weeks previous to admission to Barnes Hospital, where he received conservative treatment and was discharged as improved after five days. He felt better for about two weeks. Twelve hours previous to admission to Barnes Hospital he began to have very severe cramping pain in both lower abdominal quadrants. Pain began on the left side and crossed over to the right. There was an associated violent diarrhea. The patient previously had noted bright blood in his stool and believed, on this occasion, there was a considerable amount of old blood. Vomiting began ten hours previous to admission and was frequent.

Physical Examination.—Temperature was 36 C., pulse 112, respiration 20, blood pressure 138/88. The patient was obese and appeared critically ill. He was restless and complained of severe pain in the left lower quadrant of the abdomen and of frequent diarrhea. The skin was moist and clammy. No rash was apparent. The pupils reacted normally; hearing was diminished slightly bilaterally and the tongue was coated and dry. The lungs showed no abnormalities. The heart was not enlarged to percussion; the rhythm was irregular, apparently from frequent extrasystoles. The sounds were of good quality and there were no thrills or murmurs. There was marked tenderness without spasm in the left lower quadrant of the abdomen and the lower portion of the left upper quadrant. It was most marked over the sigmoid area and over the descending colon. No palpable masses or organs were felt and there was no distension and no hernia. Loud borborygmi were heard. The prostate was firm and diffusely enlarged to about three times its normal size.

Laboratory Findings.—Blood count: red cells 5,800,000, hemoglobin 15.5 gms., white cells 46,700, differential count: "stab" forms 18 per cent, segmented forms 72 per cent, lymphocytes 9 per cent, monocytes 1 per cent. Urinalysis was normal. Kahn test was negative. Stool examination showed blood and pus; guaiac was positive; no parasities were observed. Blood nonprotein nitrogen was 28 mg. per cent. Electrocardiogram showed auricular premature contractions and left axis deviation. Roentgenograms of the chest showed normal cardiac shadows, elevation of both leaves of the diaphragm and signs of a thickened pleura in the right lower chest.

Course in Hospital.—Under opiates and atropine, the liquid stools (from two to six each day) and cramping abdominal pain continued. On the fourth hospital day the temperature began to rise slowly. On the sixth day, dysentery bacilli of the Flexner type were isolated from the stools. Vomiting which had occurred occasionally became fecal. At that time the patient developed moderate dyspnea. Examination of the lungs revealed only a few rales and rhonci at the right base. The heart was apparently normal except for a few extrasystoles. At that time venous pressure and circulation time were normal. CO_2 combining power was 44.4 volumes per cent. A gastrointestinal roentgen ray series revealed the stomach and duodenum to be within normal limits; the appendix was visualized and appeared normal; the small intestinal loops were distended. The colon likewise was distended markedly. The barium enema canalized to the mid transverse colon without conclusive evidence of a localized lesion. The radiologist reported that an obstructive lesion had not been demonstrated conclusively. Distribution of the gas, however, and dilatation of the colon suggested that there was obstruction near the splenic flexure. On the day before death, the abdomen was distended markedly but there was no rigidity. There was some tenderness in the right upper quadrant and marked borborygmus without visible peristalsis. The temperature was 39.4 C., the pulse 120. Fecal vomiting continued and the patient passed fluid, tan-colored stools. The red cells were then 3,460,000, hemoglobin 10.8 gms., white cells 8,400 with eosinophils 4 per cent, "stab" forms 3 per cent, juveniles 1 per cent, segmented forms 71 per cent, lymphocytes 19 per cent, monocytes 2 per cent. Nonprotein nitrogen was 38 mg. per cent. Subcutaneous sulfadiazine was given and a blood level of 20 mg. per cent was obtained on the following day. During that day the patient did not void. A Miller-Abbott tube was passed and more than a liter of fecal material was suctioned from the stomach. The patient became irrational and went into shock. The temperature rose to 41.4 C., the blood pressure fell to 80/50. The hematocrit reading at that time was 50 per cent. The patient became cyanotic and despite emergency measures consisting of plasma,

glucose and saline by vein and oxygen therapy, he died on the tenth hospital day.

CLINICAL DISCUSSION

DR. W. BARRY WOOD, JR.: This case presents an interesting diagnostic problem and also gives an opportunity to discuss bacillary dysentery, which is an extremely important disease in military medicine. Dr. Harford, will you first tell us something about the bacteria that cause this disease?

DR. CARL HARFORD: The species of bacterium causing bacillary dysentery is known as Shigella dysenteriae. There are several immunologic strains of the organism referred to as the Shiga strain, the Flexner strain, the Newcastle strain, the Hiss strain and others.

DR. WOOD: Are there differences of practical importance in these strains of the organism?

DR. HARFORD: Yes. The Shiga strain elaborates an exotoxin. It is thought that this toxin causes the neurologic signs and symptoms seen in bacillary dysentery caused by this type of the organism.

DR. WOOD: I would emphasize that this distinction is important since an antitoxin may be used in the Shiga types of dysentery with satisfactory results. Dr. Harford, a good deal has been written about bacteriophage and bacillary dysentery. Would you tell us something of the relation of these two?

DR. HARFORD: The bacteriophage has been used in the treatment of dysentery and also has been used to type the various immunologic strains of the organism. Mr. Kalmonson, a senior student, has investigated this subject and I suggest that he speak about it.

MR. KALMONSON: The use of the bacteriophage to type the strains of the dysentery bacillus is not a practical procedure but the same technic has been used with promise to separate the various strains of the typhoid bacillus.

DR. WOOD: Dr. Harford, would you tell us something about the mechanism of spread of bacillary dysentery?

DR. HARFORD: It is an enteric disease spread by the contamination of food and drink with fecal material from a person who has the disease or who is a carrier of the bacteria.

DR. WOOD: Are insect vectors important in the transmission of dysentery?

DR. HARFORD: Yes, but they represent only one method of transfer of the bacteria.

DR. WOOD: Are carriers important?

DR. HARFORD: Yes. Most examples of the disease probably originate from a carrier.

DR. WOOD: Before we proceed with the clinical discussion of this case, would you say something, Dr. Moore, about the pathologic anatomy of bacillary dysentery?

DR. ROBERT MOORE: The important thing to remember about bacillary dysentery is that it is a self-limited disease. There is only superficial inflammation of the mucosa of the colon and rarely of the small intestine. After a matter of about a week the disease has run its course and there is healing unless secondary infection intervenes. During this first week of bacillary dysentery, the specific bacterium is found only in the superficial layers of the mucosa. When there is extensive ulceration of a colon it may be concluded that secondary infection is responsible.

DR. WOOD: In this patient we are looking for complications. What are the complications of chronic bacillary dysentery? May there be an abscess in the wall of the colon?

DR. ROBERT MOORE: Complications include all of the lesions seen in chronic bacterial infections of the gastrointestinal tract. There may be extensive ulceration and perforation, localized peritonitis and, rarely, a pylephlebitis with multiple abscesses in the liver.

DR. WOOD: May stenosis of the intestine occur?

DR. ROBERT MOORE: It may occur if there is a local-



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ized peritonitis following perforation. I think it would be unlikely for stenosis to occur from fibrosis of the wall of the intestine alone.

Dr. Wood: What other complications may occur?

Dr. Harford: Myocarditis.

Dr. Wood: This patient did have some signs referable to the heart and we might consider that the changes in the heart were related to the dysentery.

Dr. Harford: Some believe that the dysentery bacillus is one of the causes of idiopathic chronic ulcerative colitis.

Dr. Wood: Yes, that has been postulated. Another complication is arthritis. In the laboratory the bacterium in the stool of this patient was identified as the Flexner type of organism. How are the dysentery bacilli isolated in the laboratory, Dr. Harford?

Dr. Harford: At the present time, we are using a solid medium containing desoxycholate. This substance is used because it inhibits the growth of most nonpathogenic bacteria found in the stool.

Dr. Wood: Is a proctoscopic examination of value in establishing a diagnosis of bacillary dysentery?

Dr. Harford: Yes, it may be of great value but early in the disease the use of the proctoscope carries some risk. It has the advantage that material for bacterial culture may be obtained directly from a lesion and most contaminating bacteria are avoided.

Dr. Wood: Dr. Moore, can you make a diagnosis of bacillary dysentery by looking at a microscopic preparation of the stool?

Dr. Carl V. Moore: No, not an unequivocal diagnosis.

Dr. Wood: It is sometimes difficult to distinguish between bacillary and amoebic dysentery by a microscopic study of the stool. In some preparations from patients with bacillary dysentery, macrophages may engulf red blood cells and appear like amoeba. This patient was first admitted on the surgical service. Dr. Womack, do you believe that he had intestinal obstruction? The radiographs of the gastrointestinal tract suggested this diagnosis, yet, the patient continued to pass many stools.

Dr. Nathan A. Womack: There were many features in this patient not in keeping with ordinary intestinal obstruction. He was sick, his pulse was rapid and he definitely was prostrated. He obviously had lost a large amount of fluid and at the same time had the general signs and symptoms of an infectious disease. In view of the presence of blood in the stool and of the diarrhea, I felt that this man did not have any disease of the intestine bringing about obstruction which might be amenable to surgical treatment. It was more of an inflammatory nature.

Dr. Wood: What is your opinion on this point, Dr. Larimore?

Dr. Joseph W. Larimore: I believe that this patient did have some type of mechanical intestinal obstruction. I do not find any evidence in the history or in the course of the disease that there was an inflammation which would produce intestinal obstruction. It is possible that the patient had some type of lesion high in the large intestine producing mechanical obstruction and in addition had an inflammation of the colon below that point. This would account for the frequent, watery stools.

Dr. Wood: I take it then, Dr. Larimore, that you favor a diagnosis of carcinoma of the colon in this patient. Are there other possibilities?

Dr. Larimore: Yes. We might consider volvulus, some type of cyst of the mesentery and peritoneal adhesions, but carcinoma is the most likely.

Dr. Wood: Dr. Scheff, would you list carcinoma as the most probable diagnosis?

Dr. Harold Scheff: Yes, I would.

Dr. Llewellyn Sale, Sr.: Should one not consider multiple diverticula of the colon?

Dr. Scheff: Yes, but I do not believe that it was the principle disease.

Dr. Sale: For two or three months before admission

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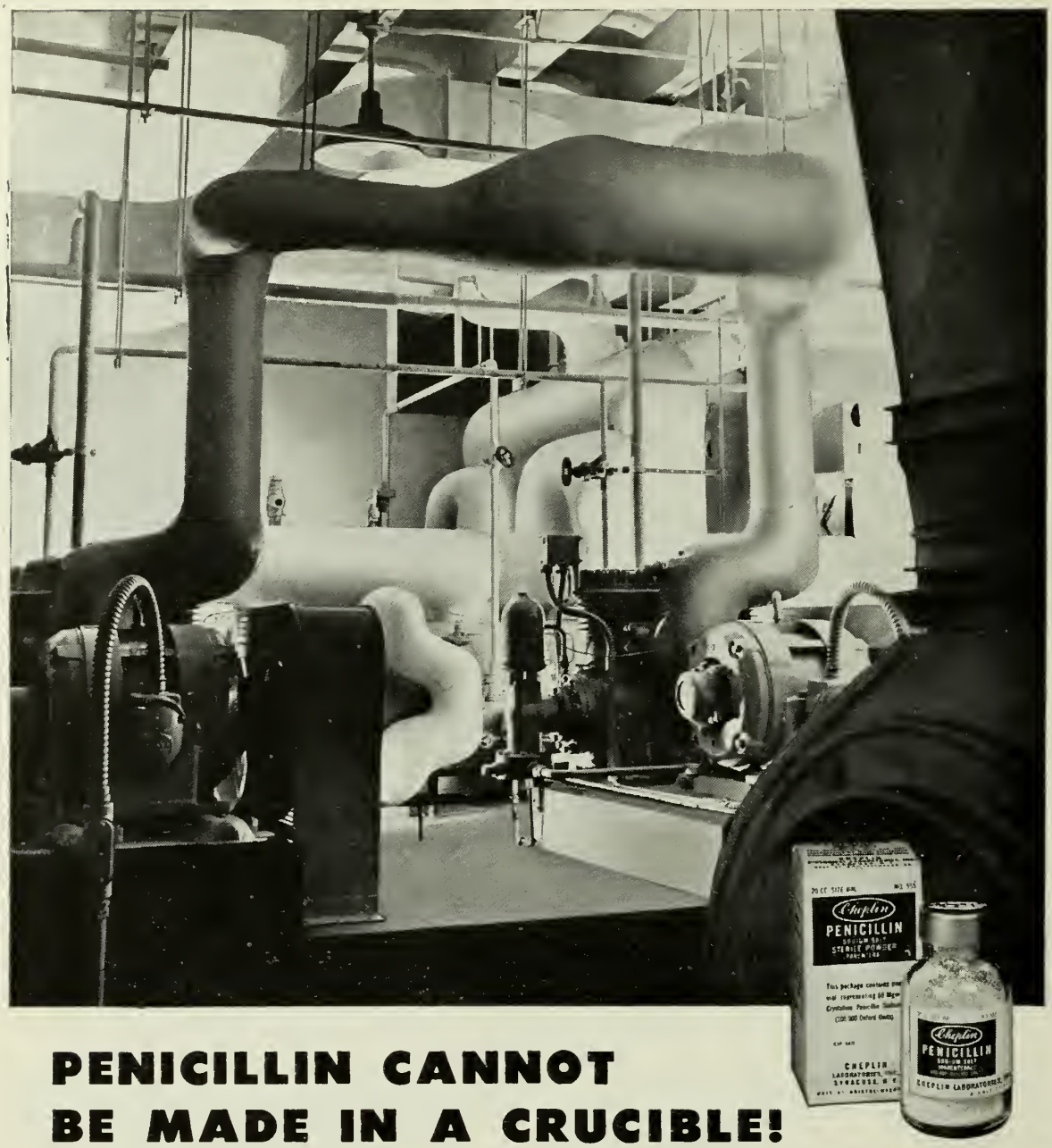
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to the hospital this patient complained of severe cramping pain in the left lower quadrant of the abdomen. The fact that diverticulae do not show on the radiograph does not mean that they are not present.

DR. SCHEFF: In evaluating the intestinal obstruction in this patient, we must assume that it was partial and not complete. It is unlikely that a sufficient amount of fluid could be secreted by the colon below the point of obstruction to account for the frequent watery stools.

DR. WOOD: Do you think it possible, Dr. Womack, that this patient had no other lesions than bacillary dysentery?

DR. WOMACK: He certainly did not have the cardinal signs and symptoms of carcinoma of the left side of the colon. It is possible that he had a carcinoma at the splenic flexure.

DR. WOOD: It is true, is it not, Dr. Womack, that the picture of obstruction from carcinoma of the colon would be altered by the presence of bacillary dysentery?

DR. WOMACK: Yes, that is true. But we must remember that this patient was admitted to the hospital before a diagnosis of dysentery was made. The second most likely diagnosis is diverticulitis. Both of these diagnoses were made before the radiographs were taken. On the basis of the radiograph, it seems likely that he had a carcinoma at the splenic flexure of the colon.

DR. WOOD: Do you believe, Dr. Larimore, that this patient had a perforation of the intestine as the result of secondary infection in bacillary dysentery?

DR. LARIMORE: No, I do not see any evidence for that diagnosis.

DR. WOOD: There can be little question but that this patient had bacillary dysentery. The essence of our discussion is whether or not the mechanical intestinal obstruction was caused by an ulcer that led to stenosis or a carcinoma of the splenic flexure of the colon. What is your opinion, Dr. Womack, on that point?

DR. WOMACK: So far as I can see from the clinical manifestation, there is little evidence for any diagnosis other than bacillary dysentery.

DR. WOOD: Dr. Larimore, what is your opinion?

DR. LARIMORE: I believe that the mechanical obstruction is caused by a carcinoma.

DR. WOOD: Dr. Carl Moore, which side of this argument are you on?

DR. CARL V. MOORE: I would prefer a diagnosis of both dysentery and carcinoma.

DR. WOOD: My own impression after consulting the literature on the complications of bacillary dysentery is that the patient may have had only dysentery with deep ulcerations of the bowel, secondary infection and fibrosis leading to stricture.

ANATOMIC DIAGNOSIS

Carcinoma of the sigmoid colon.
Dilatation of the large and small intestines above the carcinoma, advanced.
Peritonitis, subacute.
Acute and chronic ulcerative colitis and acute ulcerative enteritis.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: The carcinoma of the colon was in the sigmoid part of the colon rather than at the splenic flexure as indicated in the radiographs. There can be little question but that the carcinoma produced obstruction since the muscularis of the colon above the carcinoma was hypertrophic. There was a characteristic ulcerative colitis of bacillary dysentery in the colon and parts of the lower small intestine. Although there was no perforation of the intestine, there was a subacute peritonitis. We may assume that bacteria penetrated the wall of the dilated inflamed intestine. It is also logical to believe that some of the intestinal obstruction was related to the colitis.

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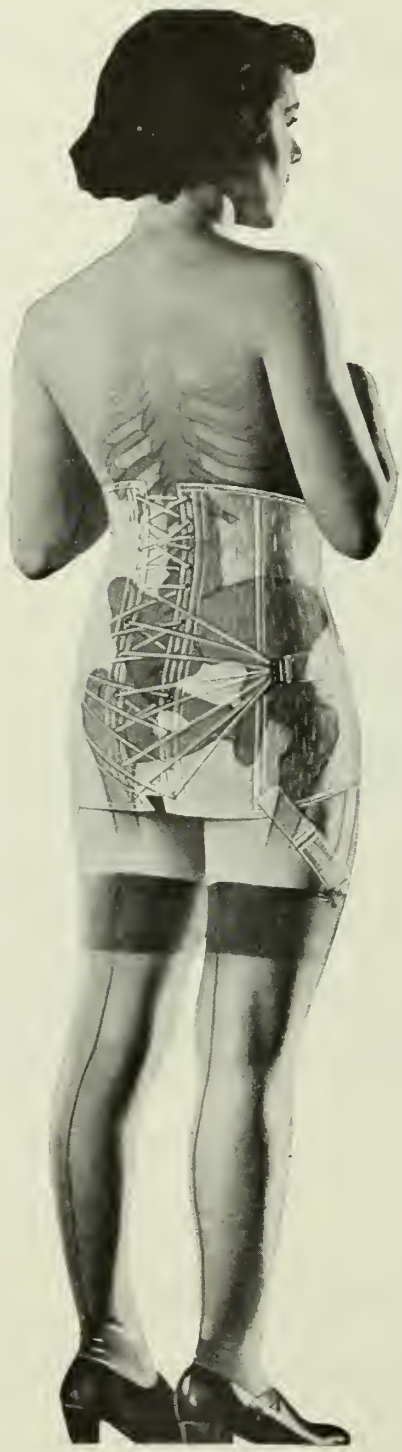
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FEBRUARY, 1945

EDITORIALS

WARTIME HEALTH AND EDUCATION

The United States Senate Committee on Education and Labor has received a preliminary report from its subcommittee, headed by Senator Claude Pepper of Florida. This subcommittee has been making an investigation of the educational and physical fitness of the civilian population as related to national defense. The report recommended the following:

1. Federal grants in aid to states to assist in postwar construction of hospitals, medical centers and health centers in accordance with integrated state plans approved by the United States Public Health Service.

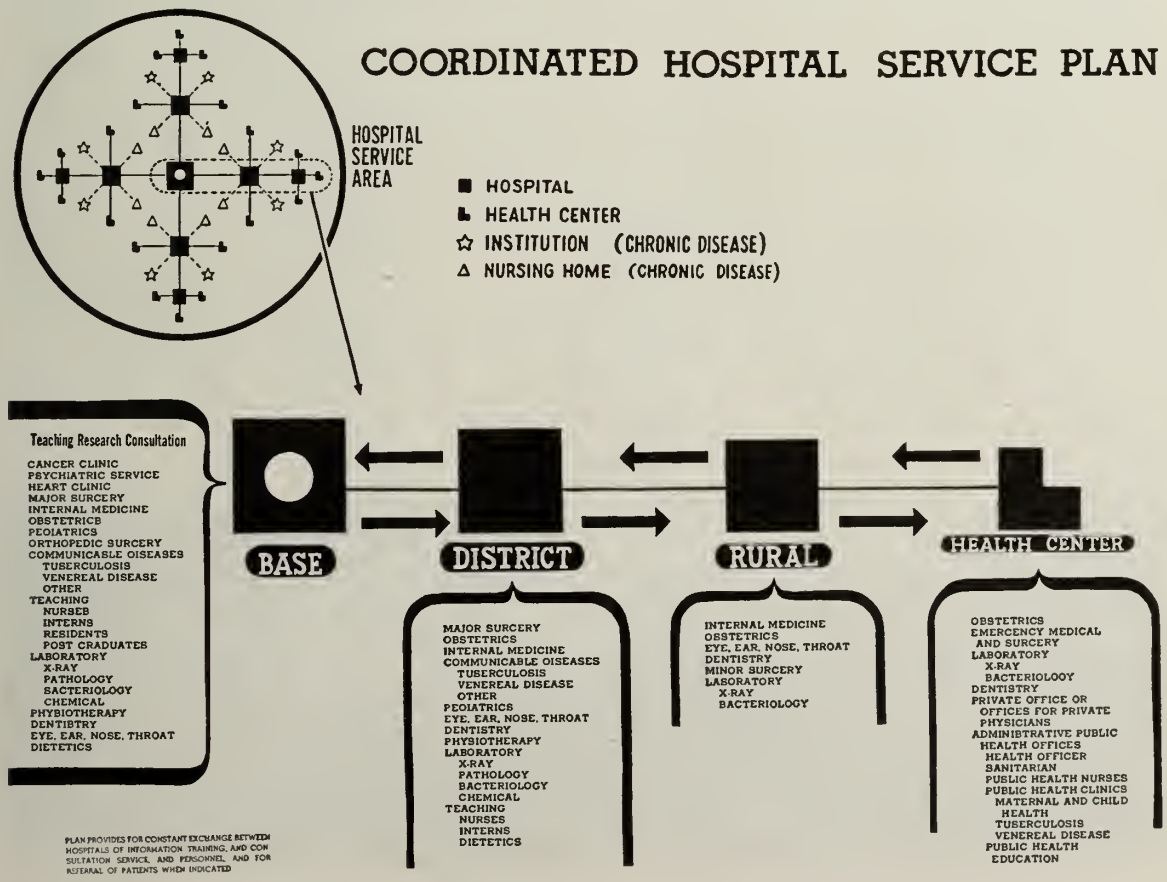
2. Federal loans and grants be made available to assist in postwar provision of urban sewerage and water facilities, rural sanitation and water facilities and milk pasteurization plants in communities and areas in which such facilities are lacking or inadequate.

3. State and local governments are urged to establish full-time public health departments in all communities as soon as the needed personnel becomes available. Consolidation and rearrangement of existing health departments also are recommended in order to eliminate overlapping functions. It is further recommended that the Federal government should increase the amount of its grants to state health departments to the end that complete geographic coverage by full-time local health departments may be achieved and that state and local public health programs may be expanded in accordance with needs.

Members of the Board of Trustees of the American Medical Association, the Surgeons General of the Army, Navy and Public Health Service, many physicians and laymen connected with industrial organizations, labor representatives, farm bureau representatives, Blue Cross and prepayment medical care plan representatives and many other persons interested in medical care distribution have appeared before this committee.

The Surgeon General of the United States Public Health Service in the report recommended a coordinated network of four basic types of medical center facilities, the small neighborhood or community "health center or diagnostic clinic," the "rural hospital," the "district hospital" and the large "base hospital." (See illustration.) This outline follows the general recommendations of other persons interested in hospital planning.

An editorial in the January issue of THE JOURNAL indicated the procedure to be followed in securing copies of the testimony presented to the committee.



ANNUAL SESSION

The 1945 Annual Session of the Missouri State Medical Association is scheduled to be held in St. Louis, April 22, 23 and 24, at the Jefferson Hotel. Plans for the Session are well underway and, pending further recommendation or ruling by the War Mobilization Commission, work toward having an outstanding session is continuing.

The Session will follow the general plan of the 1944 Session with the House of Delegates convening on Sunday, April 22, at 2:00 p. m. The second meeting of the House will be on Tuesday afternoon, April 24, and the final Council meeting following that meeting of the House of Delegates will close the Session.

Scientific work will be presented throughout Monday and on Tuesday morning. The program is being planned to be of practical value to the general practitioner and also to specialists in several fields. Several outstanding guests will participate in presenting the scientific program.

The Annual Banquet in honor of Past Presidents will be held on Monday evening with addresses by the President and President-Elect and an address by a guest speaker.

Presidents and secretaries of component county medical societies will be guests of the Association at a dinner on Sunday evening. The Committee on Study of Cardiac Diseases is planning a dinner on Sunday evening with a nationally known speaker. The dinner for presidents and secretaries will adjourn in time for that group to hear the speaker at the Committee's dinner.

Practically all available space for exhibits has been reserved and physicians will have the opportunity of learning of the newer products by contacting the exhibitors.

Every attempt is being made to make the 1945 Session a good meeting. The time of physicians is valuable and transportation facilities are valuable and the Session should give equal value, as present plans indicate it will.

MISSOURI MEDICAL SERVICE

Response of members in returning the applications to become participating physicians in Missouri Medical Service has demonstrated definitely the general interest of physicians in the plan. The response, too, indicates that Missouri physicians will support a plan under the leadership of the medical profession. It is hoped that physicians who are interested will return the application at their earliest convenience. Any member who does not have a card may obtain one by contacting the Missouri State Medical Association.

Drafting of contracts and forms and printing necessary to placing the plan on sale to subscribers are progressing rapidly and the executive committee of the Board of Trustees plans an early meeting to complete matters that have been referred to it by the Board of Trustees.

Members will be kept informed on the progress of Missouri Medical Service and further data will be carried in The Journal or placed in the hands of members as soon as it is in available form.

NEWS NOTES

Dr. Cabray Wortley, St. Joseph, was recently elected president of the St. Joseph Hospital staff.

Dr. Calvin Clay, St. Charles, has been appointed city physician for St. Charles.

The following program will be presented at a meeting of the St. Louis Surgical Society at St. Mary's Hospital, St. Louis, on February 21 at 8:30 p. m. "Surgery

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of the Newborn," Dr. William J. Gallagher; "Surgery of the Bile Ducts," Dr. John M. McCaughan; "Nontraumatic Emergency Splenectory," Dr. Bernhardt W. Klippel, discussion opened by Dr. G. O. Broun; "Congenital Diaphragmatic Hernias," Dr. James L. Mudd; "Neurosurgical Problems," Dr. Roland M. Klemme; "Report of a Case of Carotid Body Tumor," Dr. Frank J. Tainter.

Dr. F. E. Luman, Edina, administered vaccine at a county smallpox and diphtheria immunization clinic held at the Edina Public School on December 1.

Dr. P. W. Jennings, Canton, acted as physician in charge at health examinations and an immunization clinic held at the Maywood school late in November.

The Field Army of the American Cancer Society held a district training school in St. Joseph on December 13 and 14. Dr. H. E. Petersen, St. Joseph, and Dr. Louis H. Jorstad, St. Louis, were speakers.

Dr. Archie H. Lillard, LaBelle, assisted in health examinations and immunization clinics held at several schools near LaBelle on November 13.

Dr. William E. Leighton, St. Louis, was elected president of the St. Louis Surgical Society at the annual banquet of the society held on January 10. Other officers elected are: Treasurer, Dr. M. B. Clopton; secretary, Dr. B. L. Byars; board of directors, Drs. E. L. Keyes, Omar R. Sevin, James L. Mudd, D. K. Rose, J. Hoy Sanford, Oliver B. Zeinert.

DEATHS

Steckman, Philip McClellan, M.D., Plattsburg, a graduate of Jefferson Medical College of Philadelphia, 1889; member and former president and secretary-treasurer of the Clinton County Medical Society; Fellow of the American Medical Association; aged 79; died November 11.

Ferrell, Thomas Enoch, M.D., Mountain View, a graduate of Barnes Medical College, 1895; member of the Howell-Oregon-Texas County Medical Society; aged 74; died November 13.

Jones, John Franklin, M.D., Linn, a graduate of the Beaumont Hospital Medical School, 1889; honor member of the Cole County Medical Society; Fellow of the American Medical Association; aged 81; died November 22.

Lewis, John Rhodes, M.D., Kansas City, a graduate of St. Louis University School of Medicine, 1925; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 49; died November 4.

Parrish, John C., M.D., Vandalia, a graduate of Marion-Sims College of Medicine, 1891; member of the Audrain County Medical Society; Fellow of the American Medical Association; died December 4.

Smith, James Will, M.D., Aurora, a graduate of the Phisio-Medical College of Indiana, 1901; member and former president and secretary of the Lawrence-Stone County Medical Society; aged 66; died December 4.

Hill, James A., M.D., Jefferson City, a graduate of the Ensworth Medical College, St. Joseph, 1905; member and former president and secretary-treasurer of the Cole County Medical Society; Fellow of the American Medical Association; aged 75; died December 9.

Barnard, William C., M.D., Seneca, a graduate of Marion-Sims College of Medicine, 1897; member of the Newton County Medical Society; Fellow of the American Medical Association; aged 70; died January 1.



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Died While in Military Service

Hawes, William John, M.D., Columbia, a graduate of Creighton University School of Medicine, 1913; member of the Boone County Medical Society; commissioned a captain in the medical reserve corps of the U. S. Army on January 22, 1925; later promoted to major; began active duty on July 10, 1941; died in the European theater of operation July 10 of coronary occlusion; aged 55.

LEGISLATION

The 63rd session of the Missouri Legislature began January 3, 1945. Officers chosen are as follow: President pro tem of the Senate, M. C. Matthes, Republican, Hillsboro, Jefferson County; Majority Floor Leader, W. R. Williams, Republican, Cassville, Barry County; Minority Floor Leader, Emery Allison, Democrat, Rolla, Phelps County. Speaker of the House, Howard Elliott, Republican, Clayton, St. Louis County; Speaker pro tem, M. E. Thompson, Republican, Marshfield, Webster County; Majority Floor Leader, Randall L. Kitts, Republican, Chillicothe, Livingston County; Minority Floor Leader, Roy Hamlin, Democrat, Hannibal, Marion County.

The Public Health Committee of the Senate is composed of the following: Joseph A. Falzone, Republican, Clayton, St. Louis County, Chairman; Wm. J. Studt, Republican, St. Louis City; C. A. McColl, Republican, Westboro, Atchison County; H. R. Williams, Republican, Cassville, Barry County; W. W. Sunderwirth, Republican, El Dorado Springs, Cedar County; Claude B. Ricketts, Republican, St. Louis City; J. E. Curry, Republican, Ava, Douglas County; Frank P. Briggs, Democrat, Macon, Macon County (Senator Briggs was appointed U. S. Senator to serve the balance of Vice President Truman's term and a new member of the committee will be appointed later); John W. Noble, Democrat, Kennett, Dunklin County; Michael Kinney, Democrat, St. Louis City; Frank L. Wilkinson, Democrat, Kansas City, Jackson County.

The Public Health Committee of the House is composed of the following: J. A. Gray, M. D., Republican, Watson, Atchison County; Chairman; John M. Schermann, Republican, Hermann, Gasconade County; W. S. Clark, Republican, Milan, Sullivan County; C. E. Still, Republican, Kirksville, Adair County; Herman W. Meyer, Republican, Boonville, Cooper County; Birtle Huff, Republican, Versailles, Morgan County; Melvin E. Fish, Republican, Pollock, Putnam County; S. D. Griffiths, Republican, Bevier, Macon County; Dorr H. Carroll, Republican, Kansas City, 8th District Jackson County; T. J. Steinbacher, Democrat, Kansas City, 9th District, Jackson County; Thos. J. Gill, Democrat, Kansas City, 4th District, Jackson County; E. F. Bertram, Republican, Memphis, Scotland County; Frank Mashak, Democrat, St. Louis City; L. D. Greene, M. D., Democrat, Richmond, Ray County; A. F. Wagner, M. D., Republican, Greenville, Wayne County; W. A. Hunter, Democrat, St. Louis City, 2nd District; W. J. Donahue, Democrat, St. Louis City, 5th District; Marvin Wright, Democrat, Salisbury, Chariton County.

It is expected that the legislature will be in session for a longer period of time than any previous one. This is due to the fact that the proposed new constitution, which is to be approved or rejected by the voters on February 27, will require many changes in the laws of the state. Since it is believed generally that the constitution will be approved, it is expected that the legislature will be called upon to make the necessary changes in the laws.

Members will be kept informed as to legislation of interest to medical practice by articles appearing in The Journal.



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COUNTY SOCIETY HONOR ROLL 1945

(Societies Which Have Paid Dues for All Members and Date Placed on Honor Roll)

Perry County Medical Society, December 1, 1944.

Moniteau County Medical Society, December 19, 1944.

Camden County Medical Society, December 19, 1944.

Ste. Genevieve County Medical Society, December 22, 1944.

Dallas-Hickory-Polk County Medical Society, December 23, 1944.

Pulaski County Medical Society, January 2, 1945.

Scott County Medical Society, January 2, 1945.

Chariton County Medical Society, January 2, 1945.

Audrain County Medical Society, January 3, 1945.

Holt County Medical Society, January 9, 1945.

Dent County Medical Society, January 13, 1945.

Macon County Medical Society, January 15, 1945.

Mercer County Medical Society, January 15, 1945.

COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR

Barry-Lawrence-Stone County Medical Society

The Barry-Lawrence-Stone County Medical Society held its December meeting at the Barry Hotel, Cassville, December 12. A quail dinner was served.

Captain Robert P. Kaiser, O'Reilly General Hospital, Springfield, spoke on "Fractures."

Dr. Joseph L. Johnston, Springfield, spoke on "Office Obstetrics."

Both papers were exceptionally interesting and instructive.

Following the program the following officers were elected by acclamation: President, Dr. L. H. Ferguson, Monett; vice president, Dr. A. P. Capetti, Crane; secretary-treasurer, reelected, Dr. G. W. Newman, Cassville. The following delegates were elected: Barry County: Dr. Frank Kerr, Monett, delegate; Dr. G. W. Newman, Cassville, alternate. Lawrence County: Dr. Kenneth Glover, Mount Vernon, delegate; Dr. C. A. Brasher, Mount Vernon, alternate. Stone County: Dr. H. L. Kerr, Crane, delegate; Dr. A. P. Capetti, Crane, alternate.

The next regular meeting of the Society will be held January 9 at the Broadway Hotel, Monett.

G. W. Newman, M.D., Secretary.



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TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

Ste. Genevieve County Medical Society

The Ste. Genevieve County Medical Society met at the call of the president, Dr. A. E. Sexauer, Ste. Genevieve, on December 20. The following members were present: Drs. Sexauer, C. J. Clapsaddle, R. C. Lanning and R. W. Lanning, Ste. Genevieve.

The following officers were elected: President, Dr. C. J. Clapsaddle, Ste. Genevieve; vice president, Dr. R. C. Lanning, Ste. Genevieve; secretary-treasurer, Dr. R. W. Lanning, Ste. Genevieve; board of censors, Dr. R. C. Lanning; delegate for two years, Dr. A. E. Saxauer; committee on public health and legislation, Drs. J. A. Wilkens, St. Mary's; R. C. Lanning and A. E. Sexauer.

The treasurer's report for 1944 was read and approved.

Dues for 1945 were received from all members.

R. W. Lanning, M.D., Secretary.

BOOK REVIEWS

Synopsis of Diseases of the Heart and Arteries. By George R. Hermann, M.S., M.D., Ph.D., F.A.C.P., Professor of Medicine, University of Texas; Director of the Cardiovascular Service, John Sealy Hospital Consultant in Vascular Diseases, U. S. Marine Hospital. Third Edition. With 103 Text Illustrations and 4 Color Plates. St. Louis: C. V. Mosby Company. 1944. Price $5.00.

This is another of the "Synopsis Series" designed to put before physicians a summarized statement of the diagnosis and treatment of heart disease as known and practiced today by cardiologists, and is a rearranged and revised edition of the last edition three years ago and reflects the increased activity and knowledge of these eventful years.

First there is given a definition of heart disease followed by methods used in its detection: clinical, radiologic and electrocardiographic, with an appraisal of their relative value.

In view of the growing importance of a need for careful diagnosis, early in the book the author has devoted a chapter to "Nervous Disorders with Heart Manifestations," "Blood Pressure Abnormalities," "Essential Hypertension" and, finally, "General Systemic Types of Heart Disease." These four chapters indicate the many conditions which produce heart symptoms but not necessarily heart disease and the successful treatment lies along the line of the primary ailment and not entirely the heart.

The next few chapters deal with the usual subjects, arranged in a satisfactory sequence, of diagnosis and treatment of the various kinds and stages of heart disease. In Chapter XXX there are given the "must" diagnostic signs without which no diagnosis of heart disease, even a "slight" amount, should be given. This is sound advice and should be taken seriously by those having the responsibility of examining the hearts of large numbers of persons, particularly the younger groups. To diagnose heart disease lightly in them is to do, often, an irreparable harm in the development of a fear complex that may change the entire course of their life's activities, to say nothing of the ensuing neglect of the real cause of their difficulties, frequently nervous.

One of the newer chapters is that dealing with the examination of inductees and members of the armed forces. He notes the cases of heart disease that were not prevented by draft boards and induction centers from entering the services and those rejected without good reason when subsequently examined by consultants.

For physicians, especially those examining large numbers of individuals whether in civilian or military establishments a book of this kind should be at hand constantly, giving as it does authoritative criteria for acceptance or rejection of persons without or with heart disease on the basis of generally recognized standards of what really constitutes heart disease. L. S. L.

Nascent Endocrine Therapy. By John Franklin Ritter, M.D., Idaho: The Caxton Printers.

Good books, like good doctors, should be well groomed. This book creates a poor impression because it is poorly bound. However, the pearl is found in an ungodly looking oyster.

This is an intriguing book, intensely interesting, projecting a nascent idea of endocrine therapy and recording some marvelous results.

The author's results in hypertension and hypotension are phenomenal, and if one discounts them 50 per cent they are as promising as any other therapy offers and certainly better than sympathectomies and denervation of the suprarenals, which had its flare a few years ago.

I do not know whether the author is on the right track or not. He has either "lost some of his buttons" or he is the leader of a parade and is so far in front that he is marching proudly all alone carrying his banner. The reviewer will not say that the author is erratic in the claims set forth in his book. Koch, Pasteur, Semmelweis were considered "erratic" and the highbrows crucified Christ because of his "erratic" teaching.

Any physician interested in endocrinology will find this book, like a mystery story, so interesting that one hesitates to lay it down, and when he has finished reading it he finds that the mystery is not completely solved.

The reviewer is inclined to believe that if he had a few goats (caprine and homo sapiens) he would sure like to try nascent endocrine therapy on some indicated cases. F. M. P.

Traumatic Injuries of Facial Bones. An Atlas of Treatment. John B. Erich, M.S., D.D.S., M.D. Consultant in Laryngology, Oral and Plastic Surgery at the Mayo Clinic; Assistant Professor of Plastic Surgery, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota; Diplomate of the American Board of Plastic Surgery. And Louie T. Austin, D.D.S., F.A.C.D., Head of Section on Dental Surgery at the Mayo Clinic; Associate Professor of Dental Surgery, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. In Collaboration With Bureau of Medicine and Surgery, U. S. Navy. Philadelphia: W. B. Saunders Company. 1944. Price $6.00.

Particularly at a time when much attention must be given to injuries about the face, the recently published work on "Traumatic Injuries of Facial Bones" by Drs. John B. Erich and Louie T. Austin serves a distinct purpose. Practically every type of facial bone fracture is considered with special emphasis on the various methods of treatment. The book itself is referred to as "An Atlas of Treatment," and as such it considers methods employed by various plastic and oral surgeons. The book is written according to a definite plan, each type of injury being considered from every standpoint and each step in treatment discussed in rotation. It is illustrated beautifully so that one may follow the technics advised without difficulty.

The book should be a valuable guide for oral and plastic surgeons in the Army, Navy and civilian practice. V. L.



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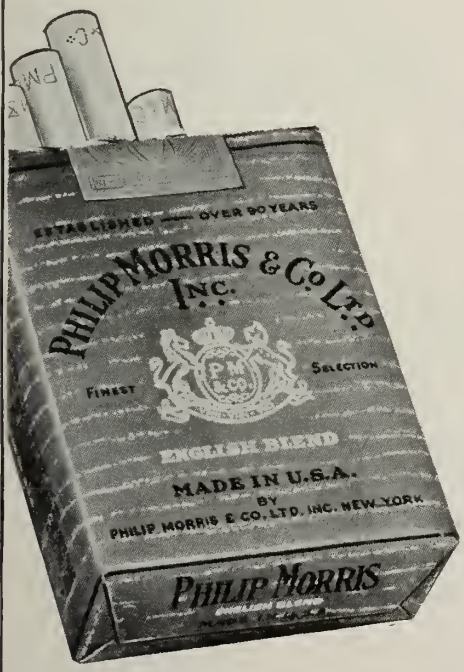
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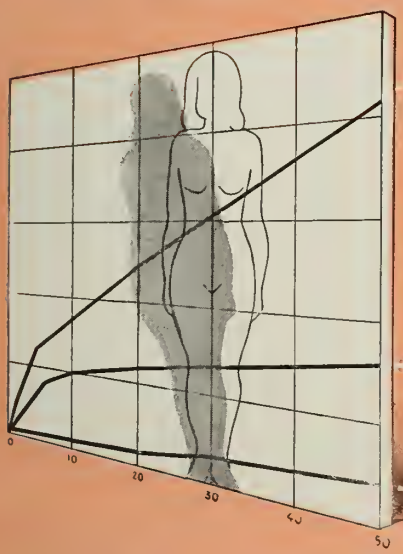
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(1) West. J. Surg., Obst. & Gyn., 51:150, 1943; (2) Clin. Med. & Surg., 46:327, 1939; (3) Am. J. Obst. & Gyn., 46:259, 1943.

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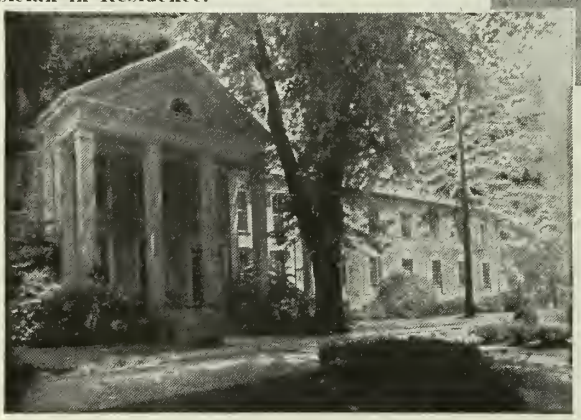
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THE
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MARCH, 1945

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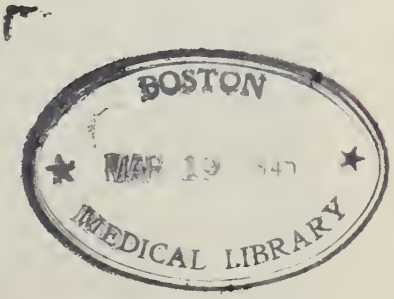
ORIGINAL ARTICLES

Nutritional Recovery Following Removal of All But Three Feet of Jejunum and Half of the Colon

Case Reports of Barnes Hospital

Coordination of Medical and Blue Cross Plans





EDITORIALS

Annual Session Cancelled

Missouri Medical Service

The Hill-Burton Hospital Bill

(Contents Index Page 133)

ANNUAL SESSION CANCELLED


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Its antibacterial activity against streptococci, staphylococci, and pneumococci makes it of real therapeutic value when these organisms predominate in:

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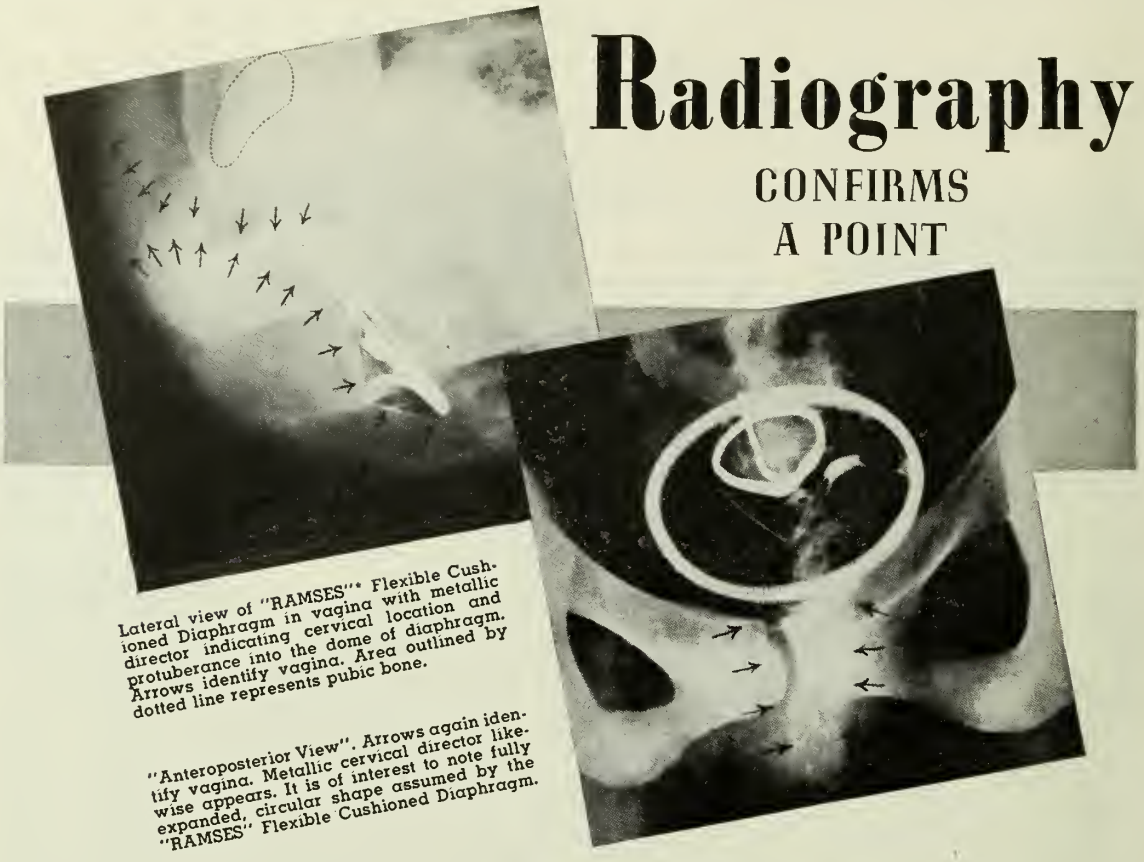
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PARKE-DAVIS

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423 West 55 St. New York 19, N.Y.

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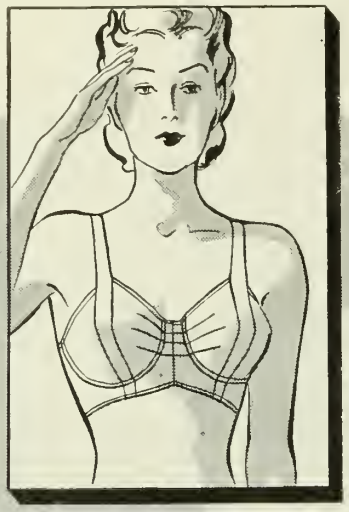
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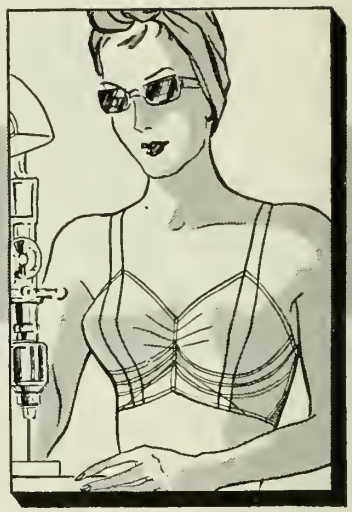
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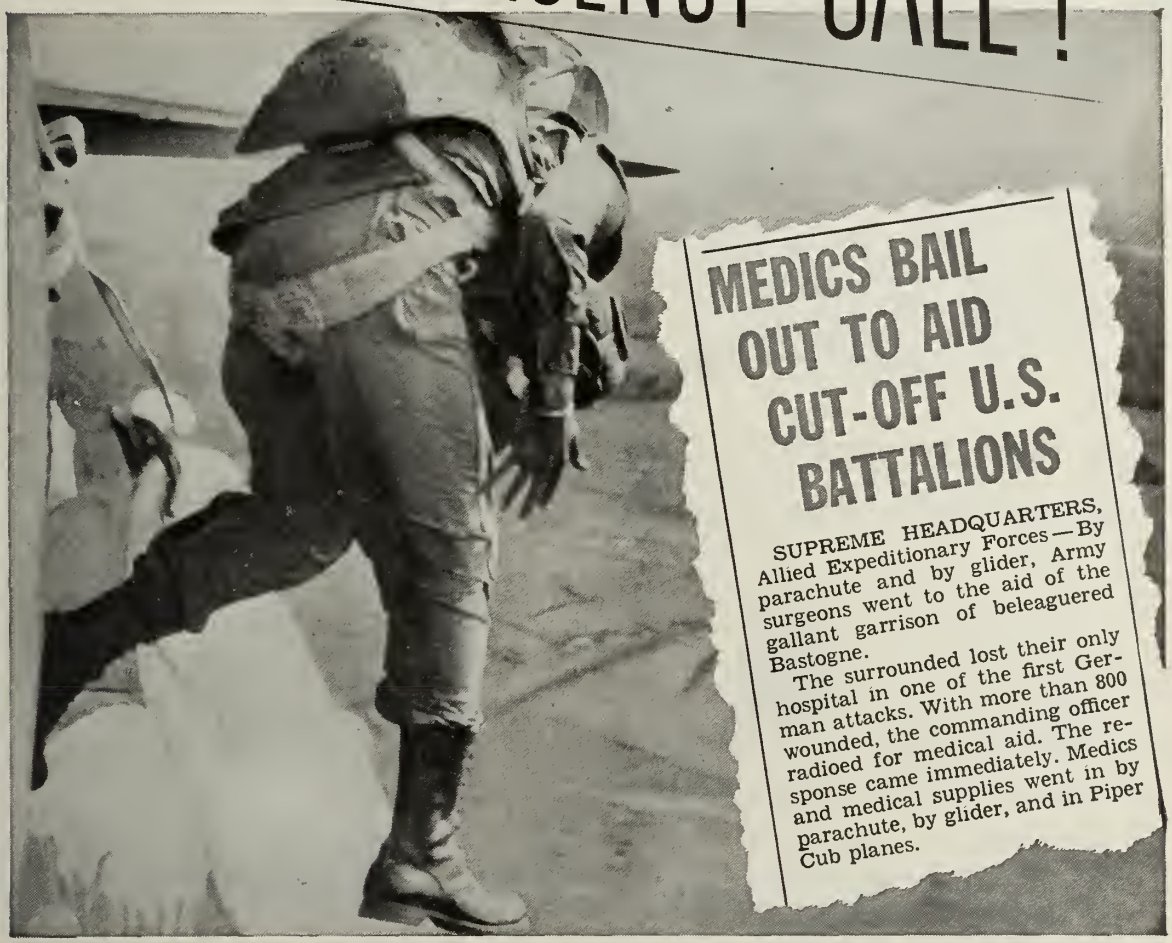
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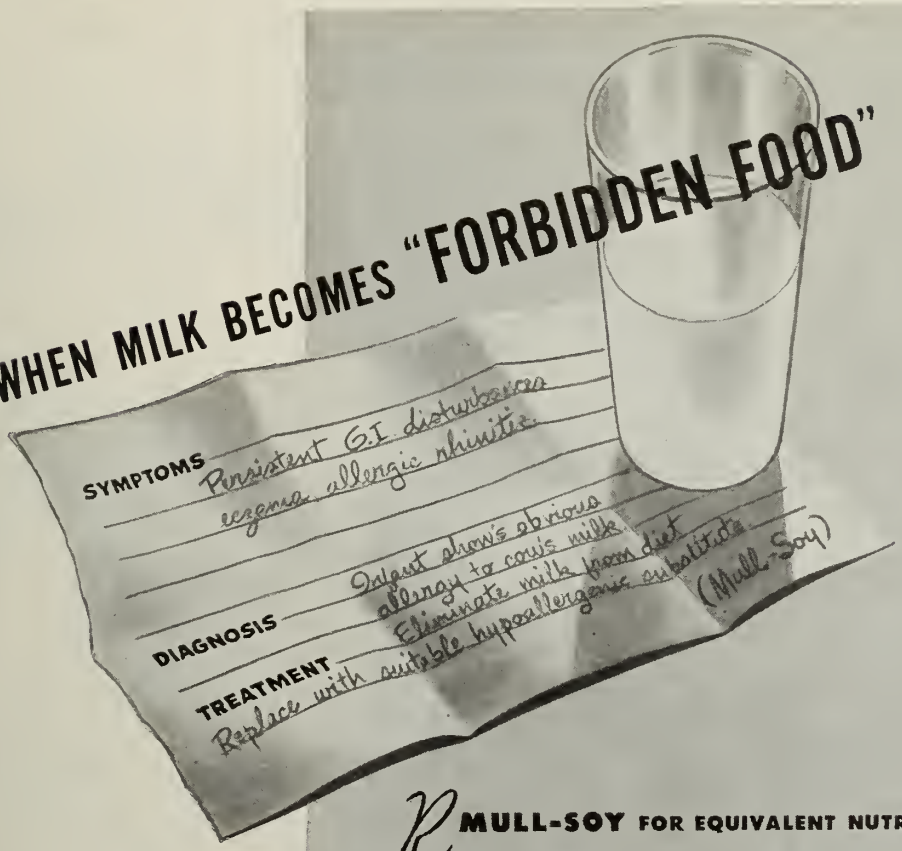
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NUTRITIONAL RECOVERY FOLLOWING REMOVAL OF ALL BUT THREE FEET OF JEJUNUM AND HALF OF THE COLON

ROBERT ELMAN, M.D.
AND
JAMES ALLAN READ, M.D.
ST. LOUIS

S. G., a dentist, aged 32, entered Barnes Hospital June 12, 1944, with a draining fecal fistula in the right lower quadrant and complaining also of great loss of weight and the passage of gas and fecal material through the urethra. The patient had had many previous operations, beginning in 1932, for regional ileitis, during the course of which two resections of the ilium were carried out. He had been asymptomatic for more than a year. Several months before his present admission he began to suffer abdominal pain and difficulty in moving his bowels at intervals, between which times he suffered from severe diarrhea. He then developed a mass in the right lower quadrant which finally came to a head and drained fecal material and pus. Shortly afterward he noted gas and fecal material passing through the urethra, which persisted. There was a loss of 50 pounds in weight.

Physical examination revealed an undernourished male, weighing 90 pounds (normal weight 140). Abdominal examination revealed moderate distention and a fecal fistula just above the right inguinal ligament. His general physical examination showed otherwise normal findings, but on laboratory study the urine was found to contain a good deal of feces and there was a moderate anemia and a hypoproteinemia. He ran a low grade fever. Gastrointestinal examination revealed the following: There were changes in the small and large intestine; the stomach and duodenum were not notable. The small intestinal pattern was chaotic and was displaced from the right lower quadrant and pelvis without evidence of the factors responsible. The opaque meal was seen to have entered a distinct left colon within two hours of the gastric fill-up. However, the right colon, showing marked irregularity and poor filling, was recognizable on the motility films. The barium enema canalized to the left transcolon where there was a funnel narrowing which continued proximally into an irregular, smooth and narrow right colon. The left colon was hypotonic. No conclusions were drawn from these observations. Barium enema attempted later was unsuccessful.

Cystoscopic examination showed a small contracted bladder with marked cystitis and an indentation at one point undoubtedly due to the abscess in the right lower quadrant. Injection of the fistula with lipiodol revealed a connection with the urinary; bladder and with various loops of small intestine, and the existence of a large cavity in the upper part of the pelvis behind the bladder.

First Operation. On June 15, 1944, through the multiplicity of old scars, an incision was made in the midportion of the abdomen; although the various layers of the abdominal wall could not be identified the peritoneal cavity was entered readily. Normal jejunum was observed emerging from the ligament of Treitz. This portion of normal small intestine measured only 3 feet. At this point it entered a mass of adherent intestine all matted together. In attempting to mobilize more of the small intestine from this mass it was soon obvious that all of it was diseased. Several fistulae could be demonstrated between loops of small intestine, the mucosa of which was ulcerated and obviously the site of further regional ileitis. It was clear that all of the small intestines distal to the small length of normal jejunum was damaged beyond recovery, yet it seemed hard to believe that life could be maintained with the mere 3 feet of normal jejunum. The colon was normal from the hepatic flexure distally. Because no other procedure seemed possible, the jejunum was divided at the point where it became diseased, its central end was turned in and an isoperistaltic side to side anastomosis made between the jejunum and healthy transverse colon. The remaining central portion of the colon, i. e., the hepatic flexure, was adherent to the rest of the small intestine and could not be mobilized. There

From the Departments of Surgery and Radiology, Washington University and Barnes Hospital, St. Louis.
Presented at a meeting of the St. Louis Surgical Society, October 25, 1944.

was an abnormally large amount of bleeding from cut tissue, although platelet counts and prothrombin time were normal before operation. It was deemed inadvisable to excise the diseased intestine at this time because of the presence of the large extra-alimentary abscess in the pelvis. The operation therefore was terminated at this point by exteriorizing several loops of damaged small intestine, which had been opened during the course of the operation. The abdominal wall was closed by through and through stainless steel wire sutures placed close together. The recovery from the operation was uneventful and undoubtedly was aided by chemotherapy with both the sulfa drugs and penicillin, and by complete parenteral alimentation with amino acids, glucose, electrolyte and vitamins, backed initially by a transfusion of one liter of whole blood.

Second Operation.—Nine days later, on June 24, the stainless steel wire sutures were removed, the peritoneum entered and the anastomosis located. In the interval, the jejunum was seen to have hypertrophied to at least twice its previous size. The colon was divided to the right of the anastomosis, the distal end turned in and a total excision of the remaining colon and small intestine then carried out. This required the isolation and division of the superior mesenteric artery. As the dissection approached the pelvis, a large abscess was encountered, contents of which were sucked out. The point of attachment between the small intestine and the urinary bladder was located, which was undoubtedly the site of the fistula into the urinary bladder. A catheter which had been passed through the urethra into the bladder permitted distention of the bladder with saline; fortunately this produced no leakage into the peritoneal cavity. Because of this it was thought unnecessary to find and close the opening which would have been difficult and time consuming. The mass of diseased intestines then was removed in one piece. The abdominal wall was closed with through and through stainless steel wire sutures; through separate incisions the retrocystic space at the site of the urinary fistula was drained as well as the lateral abscess described. In addition to blood transfusions and intravenous feeding, the chemotherapy was continued for several days. Food was started by mouth and the patient made an uneventful recovery, leaving the hospital July 8, 1944, seventeen days after the second operation. The wound healed completely except for a wound infection which was drained on the eighth day, and filled in without difficulty.

Follow-up.—Apprehension was felt that this individual, who now only had 3 feet of small intestine and but half of his large bowel, would have great difficulty in absorption of food. But, surprisingly, his nutritional status improved steadily so that within a period of three months he gained 40 pounds. Three months later, on January 9, 1945, his weight was 140. More remarkable was the fact that he is on an unrestricted diet, eats anything he pleases three or four times a day, and has but two semi-solid stools a day. Undoubtedly this remarkable physiologic feat must be connected with the fact that compensatory mechanisms have developed during the many years in which more and more of the small intestine was removed. Roentgenogram three months after discharge revealed the following: Again the stomach and duodenum were not remarkable. Barium was observed to have entered the transcolon near the splenic flexure within two hours of the gastric fill-up, to be in the sigmoid at four hours. However, some barium remained in the small intestine at six hours, as would ordinarily be observed. At twenty-four hours a moderate barium concentration was present in the left colon and the patient had had two formed stools. Barium enema demonstrated the left colon and refluxed into the small intestine; the latter appeared to be jejunum. It was concluded that there was "good total alimentary tract function without undue hypermotility of the remaining colon. The enterocolostomy seems to be free-functioning."

SUMMARY

A young adult was able to gain 50 pounds in weight with practically no difficulty in digestive function following an operation in which it was necessary to excise so much diseased intestine that but 3 feet of jejunum and half of his large intestine remained.

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CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M. D. and ROBERT A. MOORE, M. D., Editors

CASE 63

PRESENTATION OF CASE

The patient was a 57 year old married, white, male railroad employee who was first admitted to the hospital on June 19, 1944.

Chief Complaints.—Loss of memory and feeling of fullness in the head.

Family History.—Noncontributory.

Past History.—The patient's general health had been excellent. He gave no history of serious injury and had had only infrequent headaches in the past. His right eye had been removed fifteen years previously because of glaucoma. Vision in the left eye was good when corrected by glasses. Nocturia had been noticed occasionally and there was diminution in the force of the urinary stream. The patient had had no previous neuromuscular complaints. There was no history of syphilis.

Personal History.—The patient was born and raised in Texas where he had received a fifth grade education. He had been employed by the Railway Express for more than thirty years. Since

1918 he had lived in St. Louis. His dietary habits were adequate and neither tobacco nor alcohol was used in excess.

Present Illness.—Six months before admission to the hospital the patient first noticed some loss of memory which seemed to involve recent events particularly. Because of this symptom he found it difficult to carry on his work. Forgetfulness gradually increased until it was noticed by his family, and the patient developed a sensation of fullness in his head. He stated that this was not a real headache and was most noticeable in the frontal areas. He complained particularly of this latter symptom whenever he was nervous or upset. At no time had the patient had vomiting, blurring of vision, sensory disturbances or paralysis. After having consulted two physicians he finally entered the hospital.

Physical Examination.—Temperature was 37 C., pulse 80, respiration 18, blood pressure 130/96. The patient was a well nourished and well developed white man who did not appear ill. He was cheerful and cooperative, at times almost euphoric. His speech was reasonably clear. There was an obvious memory defect. The patient would start sentences while relating his history and be unable to complete them. He could not remember the name of the physician on whose service he had entered the hospital. He repeated test phrases reasonably well, but had difficulty with simple arithmetic problems. Memory for events of the remote past seemed good but that of the immediate past was poor. Examination of the skin revealed many small cherry hemangiomata over the chest and back, together with numerous dilated venules over the lower chest about the costal margin. No definite spider hemangiomata were described. The head was symmetrical. There was no localized area of tenderness of the skull and no defect could be made out. The patient had a false right eye; the left eye was normal both to gross and ophthalmoscopic examination. The hearing was not impaired in either ear; the drums were normal. The teeth were in rather poor condition. There was a questionable tremor of the tongue. The rest of the physical examination was described as normal except for a fine tremor of the outstretched hand. The neurologic examination was otherwise entirely normal.

Laboratory Findings.—Blood count: red cells 4.50 million; hemoglobin 13.8 grams, white cells 8,350; differential count: basophils 2 per cent, stab forms 3 per cent, segmented neutrophils 66 per cent, lymphocytes 25 per cent, monocytes 8 per cent. Urinalysis: specific gravity 1.025, reaction 5.5, albumin faint trace, sugar negative, microscopic, from 4 to 6 white blood cells and an occasional red blood cell per high power field. Stool was normal color. Guaiac and benzidine tests were negative. Blood Kahn reaction was negative.

Course in Hospital.—The patient's course in the hospital was uneventful. A lumbar puncture was performed and the spinal fluid was found to be normal except for a protein content of 136 mg. per cent. Kahn and Wassermann tests were negative. The spinal fluid pressure was not measured and no Queckenstedt test was recorded. Roentgenograms of the skull revealed no abnormalities. After being kept under observation for three days the patient was discharged, to be followed by his private physician.

Interval History.—Following discharge from the hospital the patient's condition gradually deteriorated. He became more and more stuporous, was unable to speak and finally lost the use of all extremities excepting the left hand. He finally developed difficulty in swallowing, could no longer be taken care of at home and was brought to the Barnes Hospital three months after his previous discharge.

Physical Examination.—Temperature was 38 C., pulse 94, respiration 20, blood pressure 110/70. The patient was stuporous and unable to speak although he occasionally appeared to recognize persons. The skin was dry and was of poor turgor. The left retina could not be visualized. The breath was foul and the tongue was dry. The left side of the face drooped more than the right. The gag reflex was absent. No other abnormalities in the cranial nerves were detected. The extremities all appeared to be paralyzed except for slight movement of the left hand and left leg at the hip. Deep reflexes were present in both upper extremities but were absent in the left leg. There was a positive Babinski sign on the right. No sensory examination could be carried out. The rectal sphincter tone was poor.

Laboratory Findings.—Blood count: red cells 5.80 million, hemoglobin 16.8 grams, white cells 17,100. Differential count: eosinophils 1 per cent, "stab" forms 10 per cent, segmented neutrophils 71 per cent, lymphocytes 16 per cent, monocytes 2 per cent. Examination of the blood smear showed toxic granulation of the white cells. Urinalysis: no specimen was obtained. Stool was normal except for a positive guaiac test. Blood Kahn reaction was negative. Blood chemistry: nonprotein nitrogen 29 mg. per cent, sugar 101 mg. per cent.

Course in Hospital.—A nasal tube was inserted and the patient was given Blair's feeding, 100 cc. every two hours. He was unable to void and a retention catheter was inserted. The patient became more and more stuporous and developed incontinence of feces. During the last forty-eight hours his temperature rapidly rose, reaching a level of 41.8 C. at the time of death. Respirations became labored and rapid, the pulse weak, the lips cyanotic, and he died early on the morning of the fifth day in the hospital.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: The case today is that of a man who, until his terminal illness, had been well except for an operation for glaucoma fifteen years pre-

vious to admission to the hospital. His chief complaint, on entering the hospital, was loss of memory for recent events. He evidently had some type of cerebral lesion. Dr. Levy, what suggestions do you have?

Dr. Irwin Levy: One might think of Pick's disease. He was mildly euphoric, complained of loss of memory for recent events, the protein in the spinal fluid was 136 milligrams. All of these symptoms indicate some degenerative lesion. He had a sense of fullness which does not necessarily mean the presence of a neoplasm.

Dr. Alexander: May one have a tumor of any considerable size without any signs or symptoms?

Dr. Levy: Yes. Under those circumstances the tumor would probably be in the frontal lobe. Such a tumor may be rather large and still not give headache, vomiting, slow pulse nor the other classical signs.

Dr. Alexander: Would a frontal lobe tumor be in keeping with the evidence in this patient? Can you fit in the various signs and symptoms of this case with tumor of the frontal lobe?

Dr. Levy: He did have a very definite mental picture. He was somewhat euphoric. This so-called witzelsucht is a symptom which occurs not infrequently in frontal lobe tumor. Personality changes may be conspicuous in frontal lobe tumors but almost all tumors show personality changes.

Dr. Alexander: Dr. Jones, do you think that this may be a frontal lobe tumor?

Dr. A. B. Jones: I do not know what it is. When a man, 57 years of age, who has been otherwise healthy, presents himself with a complaint of loss of memory, brain tumor is not the first thing that enters one's mind. The fact that he was euphoric and had loss of memory does not localize the tumor. He might have presented a contrasting picture—little interest, little speech—and still have had a frontal tumor. Mental changes in brain tumors are due to an increase in intracranial pressure rather than to localization in any particular part of the brain. In a case of this kind the first thing I would think of would be one of the degenerative diseases—Pick's disease, arteriosclerosis, presenile atrophy, excluding syphilis, in this particular case. I would first think of cerebral arteriosclerosis in which loss of memory for recent events and feeling of fullness in the head are common. As a rule, this disease progresses irregularly, but it may be fulminating.

Dr. Alexander: There is no indication that he had generalized arterial disease. His blood pressure on his first admission was 96 diastolic and there were no notable changes in his eyegrounds. Dr. Massie, may one have localized cerebral arteriosclerosis?

Dr. Edward Massie: Yes, it does occur. But the evidence for arteriosclerosis in this patient is lacking. I should not expect to find an extensive cerebral arteriosclerosis with a normal fundus. His peripheral arteries were not markedly sclerotic. Extensive cerebral arteriosclerosis in a man aged 57 is a little unusual.

Dr. Alexander: Does one find a great deal of arteriosclerosis of the coronary arteries with very little arteriosclerosis elsewhere?

Dr. Massie: Yes. There have been instances of coronary thrombosis on an arteriosclerosis basis in young persons. However, the lesion is not statistically as frequent in the cerebral vessels as in the coronary vessels.

Dr. Alexander: In cerebral arteriosclerosis, what causes the lesions? Just a diminished blood supply, an occlusion of a vessel or multiple thromboses?

Dr. Levy: Two factors are usually important—actual occlusion by a thrombus and a narrowing by arteriosclerosis.

Dr. Alexander: Sometimes, when there is a transient palsy, neurologists speak of spasm of the cerebral arteries. Is there any evidence for that?

Dr. Levy: I believe that spasm may occur, but there is no objective evidence for it.

Dr. Alexander: Do you agree with Dr. Massie that, if there is extensive cerebral arteriosclerosis, the retinal vessels would be involved?

Dr. Jones: If there was a definite arteriosclerosis of the cerebral arteries, the retinal arteries probably would be involved. If there is no retinal sclerosis it would weaken the possibility of cerebral arteriosclerosis but would not exclude it.

Dr. Robert Moore: Arteriosclerosis does not always involve all of the blood vessels. There may be advanced disease in one and very slight disease in another; there might be advanced arteriosclerosis in the vessels of the brain and very slight arteriosclerosis in the coronary vessels. It is not a disease that involves all of the blood vessels equally.

Dr. W. Barry Wood: Arteriosclerosis of the large vessels is not necessarily associated with disease in the smaller vessels.

Dr. Robert Moore: That is correct. Arteriosclerosis and arteriolosclerosis are two separate pathologic conditions.

Dr. Massie: Then, Dr. Moore, you would say that because this man did not have hypertension his chance of having an arteriosclerosis of the cerebral vessels is much less likely than if he had had hypertension?

Dr. Robert Moore: Yes.

Dr. Alexander: Do you believe that advanced cerebral arteriosclerosis may coexist with normal retinal vessels, Dr. Wood?

Dr. Wood: It is quite possible.

Dr. Alexander: If this is cerebral arteriosclerosis, would you expect a spinal fluid protein of 136 milligrams per cent, Dr. Jones?

Dr. Jones: In this disease, the spinal fluid protein content is usually under 100. The same thing could be said about most brain tumors.

Dr. Alexander: What other degenerative diseases would be possibilities?

Dr. Jones: Alzheimer's disease.

Dr. Alexander: In Pick's disease there is a degenerative lesion of the nerve cells. It is primarily a degeneration of the cortex.

Dr. Levy: It is lobar in distribution. Patients with Pick's disease usually do not have significant neurologic changes for a long time.

Dr. Alexander: Do you think that syphilis would be improbable because the serologic test was negative?

Dr. Jones: Yes.

Dr. Alexander: The consensus seems to favor a degenerative disease rather than a tumor—a degenerative disease of undetermined etiology.

Dr. Jones: It may be a tumor, Dr. Alexander. We have not ruled that out yet.

Dr. Alexander: That is true. Dr. Wood, have you any comments or suggestions?

Dr. Wood: I think it is more likely a tumor, Dr. Alexander, but I am not sure. We do not have to much objective evidence. The rapid progress, the multiple paralyses and the high spinal fluid protein are suggestive of a tumor.

Dr. Alexander: Is there such a thing as multiple brain tumors? Must this be one tumor or may there be several tumors?

Dr. Jones: It may be multiple or it may be located in that portion of the brain which would give paralysis in several locations.

Dr. Alexander: I cannot conceive of a single tumor giving flaccid paralysis of all the extremities, facial weakness and difficulty in swallowing. It would have to be a large tumor.

Dr. Jones: A tumor in the terminal phase may give paralysis of all the extremities. It is also possible that the paralysis would become flaccid in the terminal stages.

Dr. Alexander: The history states that before he

came into the hospital the patient lost the use of his arms and his limbs. His reflexes were not hyperactive. The changes indicate a cortical lesion.

DR. WOOD: In a situation like this, in which there is the possibility of brain tumor, a radiograph of the chest should be made because of the possibility of a primary lung tumor.

DR. LEVY: The man lost his eye as a result of glaucoma fifteen years previously. He may have had Hippel-Lindau disease, in which there are hemangiomas in the eye and central nervous system.

DR. EDWARD SMOLIK: There is also the possibility of subdural hematoma.

DR. LEVY: The protein content is a little high for subdural hematoma. I have never seen one with a protein of 130 milligrams per cent. The protein is rarely over 75 in a chronic subdural hematoma. The color of the spinal fluid is not caused by the elevated protein but rather by the presence of pigment.

DR. ALEXANDER: Dr. Smolik, do you think that this is a tumor or a degenerative process?

DR. SMOLIK: Both frontal lobes usually are involved in patients who have personality changes. I would favor a brain tumor, but there is the possibility of subdural hematoma. If it is a brain tumor I would suggest that it is a frontal lobe tumor and rather extensive.

DR. HAROLD SCHEFF: Dr. Alexander, were there sufficient indications, from the neurologic point of view, for air studies on the first admission?

DR. ALEXANDER: Dr. Massie, can you answer that question?

DR. MASSIE: No, there were not.

DR. ALEXANDER: Are there any further remarks? I think it is a fifty-fifty proposition. I did not think that it could be a tumor large enough to include all the paralysis, whereas a degenerative lesion, particularly arteriosclerotic degenerative disease, would be a likely cause. After hearing the discussion here I am inclined to a diagnosis of tumor, but I still feel that it may be degenerative disease.

ANATOMIC DIAGNOSIS

Malignant melanoma involving the myocardium, the pericardium, the lower lobe of each lung, the left kidney, pancreas, peripancreatic lymph nodes, mesenteric lymph nodes, colon, brain, diaphragm and mucosa of the urinary bladder (history of progressive ataxia and loss of memory, five months; dysphagia, dysphonia and partial paralysis, one week; history of removal of right eye for glaucoma, seventeen years).

Pigmented nevus of the skin of the right forearm.

Thrombi in secondary and tertiary branches of the pulmonary arteries.

Recent infarcts of lower lobes of lungs.

Bronchopneumonia of the lower lobes of the lungs.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: The examination of the external surface of the body revealed two significant lesions: One, multiple hemangiomas on the back and chest; the other, a small nevus on the exposed part of the right forearm. With regard to this lesion, we have the opinion of Dr. Lane that it was not malignant.

The vessels at the base of the brain showed a moderate to advanced degree of arteriosclerosis. The leptomeninges were thickened, white and opaque—the sort of lesion that is seen frequently in association with arteriosclerosis of the cerebral vessels. The convolutions were flattened and the sulci were narrow, to be interpreted as the result of an increase of pressure within the cerebral substance which forced the brain against the inside of the skull. There was a large tumor mass occupying the central part of the left hemisphere, brown in color, and soft in consistency.

The heart weighed 460 grams; in other words, it was enlarged and, throughout the myocardium there were numerous nodules, rather sharply circumscribed, brown in color, and soft in consistency. These are typical metastases of a malignant melanoma. A malignant melanoma, without considering its pigment, is a coarsely granular, soft tumor. Add to that brown or black pigment and there is the characteristic appearance of that type of tumor. There was also a moderate to advanced degree of arteriosclerosis of the coronary arteries with occlusion of the circumflex branch of the left coronary artery. There was a large focus of fibrosis of the myocardium which we interpreted to be a healed infarct of the left lateral wall of the ventricle. In addition to the tumor in the brain and heart there were nodules in the lower lobes of the lungs, in the diaphragm, in the pancreas and in the lymph nodes about the pancreas, in the mesenteric lymph nodes, in the peritoneum of the colon and in the mucosa of the urinary bladder. This tumor was widely distributed throughout the internal viscera but it spared the one organ that malignant melanoma typically involves—the liver. All of the tumor nodules were pigmented; the nodules in the pancreatic lymph nodes were light brown in color but we did not find a single tumor nodule that could not be identified grossly as a malignant melanoma.

The kidneys showed a slightly granular surface with some thinning of the cortex; in other words, there was arteriolar nephrosclerosis. When taken with the enlargement of the heart, my interpretation would be that this man probably did have hypertension at some time during the last few years of his life. Otherwise, I am unable to account for the increase in the size of the heart plus the presence of vascular disease of the small blood vessels which is so frequently associated with hypertension.

In the lungs there were thrombi in the secondary and tertiary branches of the arteries to the lower lobes with numerous small recent infarcts. In addition, there was an extensive bronchopneumonia involving both lower lobes. The spleen was large and soft with prominent follicles, probably a manifestation of the infection.

Microscopically, the tumor is a characteristic malignant melanoma. Not all of the cells show pigment. All of them presumably have the ability to produce it if given the proper surroundings.

What part did arteriosclerosis play in bringing about the symptoms and what part did the tumor play? We cannot give you definite information on that point. The gross anatomic changes of arteriosclerosis of the brain and those of tumor are diametrically opposed to one another. The change in arteriosclerosis is atrophy of the cerebral substance. Atrophy of cerebral substance would result in broader sulci. With a tumor, the sulci are narrow and the convolutions flattened. Judging from the clinical manifestations, the large brain tumor measuring four centimeters in diameter was the more important of the two lesions.

There are three possibilities for the origin of this malignant melanoma: first, that it came from the nevus on the skin; second, that it came from the eye which was removed seventeen years before death and, third, that it was primary in the brain. There are parts of the brain derived from ectoderm and the cell giving rise to malignant melanoma has that same derivation. Primary malignant melanoma of the meninges has been described, but it is an extremely rare lesion. There are no microscopic sections available for study of the eye and there are no records that the eye was ever examined, so we can give no description of the lesions beyond the manifest glaucoma and chronic uveitis. The fact that seventeen years had passed is not contrary to experience. Malignant melanoma of the eye may be the source of metastases to the viscera many years after the removal of the eye. With Dr. Lane's

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opinion concerning the lesion on the skin, I come to the conclusion that this patient had a malignant melanoma of the eye with late metastases to the brain and the other viscera—a diagnosis made by one of the students.

CASE 64

PRESENTATION OF CASE

G. G. P., a 60 year old white barber entered Barnes Hospital on May 28, 1930, and was discharged the following day. He had eight subsequent hospital admissions.

Chief Complaints.—Pain in the extremities, cough, fatigue and palpitation on exertion.

Family History.—Irrelevant.

Past History.—About 1900 the patient developed a chancre. He had two courses of medication, injected into the hip. In 1920 a 2 plus Wassermann reaction was discovered but the patient did not accept treatment. In 1916 he was treated at the City Hospital for insomnia, dizziness and nervousness and was told then that he had high blood pressure. He had worked for years either as a barber or a salesman of barber supplies. He smoked excessively but did not drink. His diet was poor.

Present Illness.—For several years the patient had complained of twinges of pain in the arms and legs. These were not severe and never lightning in character. Six months before admission, a cough occurred and this had been persistent and productive of purulent sputum. For some few months he had complained of increasing fatigue. He had noticed palpitation on moderate exertion for an undetermined length of time. No edema or shortness of breath were recorded. He consulted a physician for these symptoms who referred him to the Washington University Clinics and from there he was sent to the hospital primarily for a lumbar puncture.

Physical Examination.—Temperature was 37 C., pulse 72, respiration 18, blood pressure 160/80. The patient was well nourished and developed, intelligent and cooperative. The hearing was diminished on both sides. The pupils were equal and reacted somewhat sluggishly to light. The retinal vessels were moderately sclerosed. His heart was enlarged to the left on percussion; the rhythm was regular, the sounds distant but of fair quality and there were no murmurs. The radial arteries were thickened. The lungs showed no abnormalities. The liver edge was palpable one finger breadth below the right costal margin; the spleen and kidneys were not felt. Moderately enlarged nodes were present in each axilla and in the groins. The neurologic examination revealed no motor or sensory abnormalities.

Laboratory Findings.—Blood count: red cells 3,570,000, hemoglobin 70 per cent, white cells 8,600; differential count: basophils 1 per cent, eosinophils 1 per cent, "stab" forms 4 per cent, segmented forms 58 per cent, lymphocytes 31 per cent, monocytes 5 per cent. Blood Wassermann test was negative. Spinal fluid showed 1 lymphocyte; Pandy test, plus minus; Wassermann, negative; colloidal gold, 00111100000. The patient was referred to his private physician.

Second Hospital Admission.—October 22 to November 4, 1943.

Interval History.—Little information was recorded until one year previous to this admission when the patient noticed increased weakness manifested by an inability to walk one city block without stopping to rest several times. During such exertion, there was marked aching of the legs. Cough complained of on first admission persisted and was productive of a moderate amount of nonpurulent phlegm. Nocturia four or five times with difficulty in starting the stream had been present for almost a year. Five months previous to admission swelling of the face became apparent, particularly in the morning. He consulted his physician who told him that he had a blood pressure of 180 and Bright's disease. A salt free diet with no meat was prescribed. Two months later swelling of the ankles and of the abdomen appeared. For these symptoms the patient went to the City Hospital and was referred to Barnes Hospital.

Physical Examination.—Temperature was 37 C., pulse 88, respiration 20, blood pressure 190/80. The patient appeared extremely undernourished, very pale and chronically ill. He coughed frequently in an explosive manner and produced small quantities of mucoid sputum. The skin was very inelastic, loose, with apparent marked loss of subcutaneous tissue. It was dry and scaly and over the dorsum of each hand were several small purple spots. In each axilla a mass of slightly enlarged lymph nodes was felt. Similar nodes were palpable in the inguinal regions. His hearing was impaired. The conjunctivae were pale; the pupils were regular and equal but reacted sluggishly to light. The retinal arteries were tortuous and narrowed. Pyorrhea was present around a few remaining dirty teeth. The tongue was coated. A few small petechial spots were apparent on a pale buccal mucosa. The lungs were resonant throughout to percussion. The breath sounds were vesicular and an occasional rhonchus was heard with moist rales over the right base posteriorly. On percussion the heart measured 11½ centimeters to the left in the sixth interspace and about 2½ centimeters to the right of the midsternal line. Over the mitral area was a rough, rasping, low pitched systolic murmur transmitted toward the base. Over the aortic area was a similar murmur which was taken to be a separate one transmitted somewhat upward. No diastolic murmur was heard. The rhythm was regular. The abdomen was distended and the umbilicus obliterated. The skin was tight and shiny. A fluid wave was present. Liver and spleen were firm and smooth and each descended about five finger breadths below the costal



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1. Am. J. Dis. Child. 66:1 (July) 1943.

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margin. No other organs were felt. There was slight tenderness across the lower abdomen. Slight pitting edema of the sacrum was present. The prostate was moderately enlarged, firm, smooth and not tender. The peripheral arteries were hardened and tortuous. A slight pitting edema was present over both ankles.

Laboratory Findings.—Blood count: red cells 2,180,000, hemoglobin 5.0 grams, white cells 6,500; differential count: eosinophils 1 per cent, myelocytes 30 per cent, "stab" forms 13 per cent, segmented forms 28 per cent, lymphocytes 25 per cent, monocytes 3 per cent. There were 6 nucleated red blood cells per 100 white cells, and anisocytosis and poikilocytosis were present. Urinalysis: albumin 3 plus, occasional granular cast. Stool was normal. Blood Kahn test was negative. Liver function tests: total blood proteins 5.8 grams, albumin 3.7, globulin 2.1. Cephalin flocculation test was negative; hippuric acid test 32 per cent excretion of sodium benzoate; icterus index 15; direct van den Bergh 0.56, indirect 1.35; direct bilirubin 41 per cent; prothrombin time 44 seconds, control 40 seconds. Venous pressure was 120 mm. H_2O. Circulation time (decholin) was 24 seconds.

Course in Hospital.—A biopsy of bone marrow of the sternum was done. Microscopic pathologic study showed a normal distribution of blood elements. There was, however, an increase in the fibrous tissue stroma with an accompanying diminution in the cellular elements. Diagnosis was myelophthisis, mild. Further blood studies revealed a hematocrit reading of 21 per cent. The mean corpuscular volume was 125 cu. mic.; the corpuscular hemoglobin 25.05, corpuscular hemoglobin concentration 24.3 per cent. Coagulation time was 10 minutes, bleeding time 3½ minutes. A roentgenogram of the chest revealed the cardiac silhouette to be enlarged both to the right and left; the aorta was lengthened, the hilus shadows were prominent. An electrocardiogram revealed inverted T waves in lead CF2, diphasic in CF4, which was diagnosed myocardial damage. Left axis deviation was present. Under symptomatic treatment and three transfusions the patient improved in that on discharge the edema had subsided, red cells had risen to 3.48 million, hemoglobin 12 gms., and the white cells 12,600. Myelocytosis persisted. There was no fever.

Third Hospital Admission.—November 25 to December 1, 1943.

Interval History.—Two weeks after leaving the hospital the patient fell and an abraided wound on the right leg soon became infected. This was his chief complaint. On physical examination the only added findings from the previous admission were three sinuses of the skin overlying the anterior surface of the right tibia. From these thick pus exuded. The surrounding skin showed an area of cellulitis 8 by 10 cm. The blood count revealed 2,280,000 red cells, hemoglobin 6.3 gms., white cells 9,450, platelets 866,000. The differential count was essentially as before. The patient was treated symptomatically. Roentgenogram of the injured leg showed no evidence of bone change and he was discharged improved after one week.

Fourth Hospital Admission.—December 27, 1943, to January 15, 1944.

Interval History.—The patient had been followed in the outpatient department and was referred into the hospital because of progressive anemia. The physical findings were stated to have been essentially those of admission twenty-six days previously.

Laboratory Findings.—Blood count: red cells 2,298,000, hemoglobin 6.2 gms., white cells 10,450; differential count: "C" myelocytes 18 per cent, "B" 2 per cent, "A" 1 per cent. Juvenile forms 11 per cent, "stab" forms 18 per cent, segmented forms 34 per cent, lymphocytes 9 per cent, monocytes 7 per cent, platelets 778,000. Urinalysis: albumin 2 plus with occasional granular cast. Circulation time (decholin) was 28 seconds. Venous pressure was 172 mm. of H_2O.

Course in Hospital.—The patient was digitalized slowly (he had taken digitalis irregularly). The electrocardiogram was essentially as before. The patient received six transfusions of whole blood and of red cells. Paracentesis of the abdomen was done and 5,000 cc. of straw colored fluid were removed. At discharge his red blood cells were 3,770,000.

Fifth Hospital Admission.—March 3 to March 16, 1944.

Interval History.—When the patient's blood count became reduced to 2,320,000 and hemoglobin was less than 7 gms., he was admitted to the hospital for further transfusions before entering a nursing home.

Physical Examination.—There were many rales throughout the lungs. The heart was essentially as before with a blood pressure of 160/78. The liver apparently had not changed in size but the spleen had enlarged considerably and occupied the entire left upper quadrant of the abdomen. Moderate ankle edema was present.

Laboratory Findings.—Blood count: red cells 2,720,000, hemoglobin 8 grams, white cells 14,000; differential count: basophils 1 per cent, myelocytes 20 per cent, juveniles 24 per cent, "stab" forms 17 per cent, segmented forms 22 per cent, lymphocytes 14 per cent, monocytes 2 per cent. Urinalysis: albumin 4 plus, occasional casts. Stool examination was normal. Blood chemistry: total proteins 4.9 gms. per cent, albumin 3.0, globulin 1.9, calcium 11.6 mgs. per cent, phosphorus 3.7 mgs. per cent, phosphatase 4 Bodanski units. Cephalin flocculation test was 1 plus. Bromsulphalein test showed 36 per cent retention in thirty minutes. The patient was transfused with cell residue and red blood cells and when discharged the red count was 3,770,000. The abdomen was tapped and 5,000 cc. of straw colored fluid was obtained.



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Sixth Hospital Admission.—April 24 to May 24, 1944.

Interval History.—Since the previous admission, the patient's usual complaints of weakness and shortness of breath had gradually increased and the legs and abdomen had become greatly swollen.

Physical Examination.—Other than marked ascites, sacral edema and marked edema of the legs, there was no change in his condition from the previous admission.

Laboratory Findings.—Blood count: red cells 2,430,000, hemoglobin 8 gms., white cells 29,700; differential count was almost identical with those of his previous admissions. Urinalysis: albumin 3 plus, numerous granular casts. Stool examination was normal. Kahn reaction was negative. Venous pressure was 95 mm. H_2O. Circulation time (decholin) was 22 seconds. Basal metabolic rate was minus 15 per cent.

Course in Hospital.—The patient was transfused with 3 units of cell residue and the red cells rose to 3,800,000. Two paracenteses of the abdomen were performed with removal of 5,700 and 3,600 cc. of clear straw colored fluid. Mercupurin and aminophylline were used with some diuretic effect. While receiving these drugs, the patient developed a sinus bradycardia which was not relieved by belladonna.

Seventh Hospital Admission.—July 13 to August 1, 1944.

Interval History.—The patient's course was slowly downhill and he entered the hospital for further transfusions. Physical examination revealed less edema and less ascites than on previous admission but his condition otherwise was unchanged.

Laboratory Findings.—Blood count: red cells 2,100,000, hemoglobin 10.7 gms., white cells 13,000 with 31 myelocytes. Urinalysis: albumin 2 plus, occasional granular casts. Sputum examination showed no acid-fast organisms. Culture of ascitic fluid was sterile.

Course in Hospital.—The patient's cough persisted and there was blood tinged sputum. A nose and throat examination revealed no bleeding points. Roentgenogram of the lungs showed no changes from previous examinations and he was discharged with a red blood count of 4,200,000, hemoglobin 11.5 gm. The edema had subsided.

Eighth Hospital Admission.—September 28 to October 6, 1944.

Interval History.—A few days before admission the patient developed a new complaint in that he had a dull aching pain in the left lower quadrant which was localized there. It remained constant and was fairly severe and it was for this that he entered the hospital. Physical examination was as before with the exception of the abdomen wherein the spleen was described as enlarged to the midline below the umbilical level. Evidence of fluid was present. There was a slight icteric tinge to the skin. Red blood cells were 1,930,000, hemoglobin 6.5 gms., white cells 46,400 with 19 per cent myelocytes. Icterus index was 10. Laboratory findings were unchanged otherwise. On abdominal paracentesis, 3,000 cc. of fluid were obtained. Streptococcus fecalis and E. coli were cultured from the fluid. The patient received six red cell residue transfusions and the red blood cell count rose to 3,850,000 with 10.5 gms. hemoglobin.

Ninth Hospital Admission.—October 26 to December 2, 1944.

Interval History.—Since the previous discharge, increased swelling of the lower extremities had occurred. Cough which persisted gradually became more pronounced and a few days before admission there was a sudden sharp severe pain in the left lower chest which remained constant. At this time a fever developed. Shortness of breath grew pronounced.

Physical Examination.—Temperature was 39.6 C., pulse 100, respiration 28, blood pressure 160/70. The patient appeared acutely ill and complained bitterly of pain in the left chest. His skin showed a marked pallor and many scattered purpuric spots. Respirations were rapid. The eyegrounds showed sclerotic changes in the arteries. The upper respiratory tract was normal except for diminished hearing. There was dulness at the base of the left lung with depression of breath and voice sounds. Evidence of emphysema was present. The heart was enlarged 13 cms. to the left in the fifth interspace. Murmurs had not changed from previous descriptions. There was evidence of fluid in the abdomen and the spleen and liver remained markedly enlarged. Enlarged nodular prostate was noted. There was moderate edema of the ankles.

Laboratory Findings.—Blood count: red cells 3,750,000, hemoglobin 8.5 gms., white cells 80,150; differential count was essentially as on last admission. Urinalysis: albumin 3 plus, many finely granular casts. Nonprotein nitrogen was 25 mg. per cent. Total proteins were 5.0 gms. per cent, albumin 3.2, globulin 1.8. Circulation time (decholin) was 20 seconds. Venous pressure was 145 mm. H_2O. Blood culture showed no growth. Electrocardiogram showed little change from previous record.

Course in Hospital.—On fluoroscopic examination, the essential features were a diffuse shadow at the left lung base and an enlarged heart. The patient was treated with sulfadiazine and his temperature soon returned to normal. About one week after admission edema increased and involved the entire skin, although the patient was able to lie flat without respiratory distress. Because of increasing anemia he was given several transfusions. Fluid was obtained both from the abdomen and from the chest. The pulse became slower and an electrocardiogram showed auricular fibrillation with almost complete A. V. block. The patient continued to grow weaker, oliguria developed and he died suddenly.

CLINICAL DISCUSSION

Dr. Harry Alexander: There were two features in this case which repeated themselves on each admission. One was the hematologic picture and the other was edema. As far as the hematologic picture was concerned, it consisted of anemia relieved by transfusion and the appearance in the peripheral blood of many myelocytes and, on one occasion, nucleated red blood cells. Dr. Moore, what is your impression of the patient's hematologic disease?

Dr. Carl V. Moore: The differential diagnosis, Dr. Alexander, rests between a chronic myelogenous leukemia and a space-filling lesion of the bone marrow. Because we were not able to demonstrate the characteristic marrow changes of leukemia, we concluded that it was the latter—a space-filling lesion of the bone marrow—myelosclerosis. Because of the enlarged spleen, we thought that he had agnogenic myeloid metaplasia.

Dr. Alexander: Do you feel that the agnogenic myeloid metaplasia is a part of the space-filling lesion of the bone marrow, or are they separate?

Dr. Carl V. Moore: Agnogienic myeloid metaplasia is a syndrome. It would be hard to answer your question until one knew the etiology of the two lesions. However, the syndrome of agnogenic myeloid metaplasia with involvement of the liver and the spleen, plus a change in the bone marrow which may be one of several—myelosclerosis, osteosclerosis or hypoplasia —is possible.

Dr. Alexander: What is the commonest space-filling lesion of the bone marrow?

Dr. Carl V. Moore: Leukemia would have to be considered the commonest.

Dr. Alexander: In leukemia does one get this picture?

Dr. Carl V. Moore: No. After leukemia, carcinoma is the commonest, with myelosclerosis next, although myelosclerosis is rare in comparison to carcinoma of the bone marrow.

Dr. Alexander: Are there other conditions that involve the bone marrow to crowd out the red blood cells?

Dr. Carl V. Moore: Yes, extensive Hodgkin's disease, extensive tuberculosis, osteosclerosis, invasion of the bone marrow with histiocytes as in Gaucher's disease or in Niemann-Pick disease.

Dr. Alexander: Does myelofibrosis lead to osteosclerosis?

Dr. Carl V. Moore: Not to my knowledge. It seems to me that osteosclerosis or Albers-Shönberg's disease is different from myelosclerosis or a fibrosis of the marrow.

Dr. Alexander: Dr. Moore, is it your impression that there are two separate conditions or does osteosclerosis begin as myelofibrosis?

Dr. Robert Moore: I think they are two separate diseases. Fibrosis of the bone marrow on one hand and an increase in the amount of true calcified osteoid tissue on the other.

Dr. Alexander: In osteosclerosis is the configuration of the bone marrow usually normal?

Dr. Carl V. Moore: Yes. There may be isolated islands of comparatively normal tissue with little fibrosis, but the ratio of myeloid to erythroid cells may be normal or there may be a slight shift to younger forms. Either one may be present.

Dr. Alexander: Does a space-filling lesion crowd the blood elements into the peripheral blood? What mechanism is presumed to occur under these circumstances?

Dr. Carl V. Moore: There are two explanations for the fact that young cells enter the peripheral blood. One, the space-filling lesion may force some of the young forms into the peripheral blood. Secondly, there are probably large areas of extramedullary myelopoiesis in the liver, lymph nodes and spleen and in those organs there is not the normal break for delivery of the young cells into the peripheral blood.

Dr. Alexander: Is it true that the young forms of the blood cells appear both in the peripheral blood and in the bone marrow in these conditions? May one frequently get a great increase in erythroblasts?

Dr. Carl V. Moore: That is right and that is one of the principal ways of differentiating, on the basis of examination of the peripheral blood alone, between a true leukemia and a leukemoid reaction such as this.

Dr. Alexander: Is myelosclerosis of long duration or can it be as acute as this? There were intervals of only a month or two between the admissions with a profound anemia each time. Is that characteristic of myelosclerosis?

Dr. Carl V. Moore: No. In Jackson and Parker's cases there was an average length of life of ten and four tenths years after onset of symptoms.

Dr. Alexander: Then you feel that this is an unusually rapid insistent anemia?

Dr. Carl V. Moore: Yes, this is a much more rapid course than one usually sees in this disease.

Dr. Alexander: Dr. Reinhard, this man was transfused with cell residue. What is cell residue and why was it used for this patient?

Dr. Edward Reinhard: Cell residue is merely whole blood from which the plasma has been removed. This patient did not need the whole blood so he was transfused with cell residue and the plasma that had been removed from the blood could then be used for another patient. For his needs the cell residue was satisfactory.

Dr. Alexander: Dr. Moore, are the cells formed in the liver and the spleen, where there is myeloid metaplasia, discharged into the blood quickly?

Dr. Carl V. Moore: It may not be accomplished quickly but at least it is done without the usual break that the bone marrow has.

Dr. Alexander: Do the lymph nodes also show myeloid metaplasia?

Dr. Carl V. Moore: Usually the spleen is the principal organ involved and may occupy almost the whole of the abdomen, but other tissues may be the seat of metaplasia.

Dr. Alexander: Does radiation help these individuals?

Dr. Carl V. Moore: I have never tried it because Parker says that three or four of his cases were radiated and most of those died within two months after radiation. One would actually be radiating the patient's only good bone marrow and it should be contraindicated.

Dr. Alexander: Do you subscribe to the idea that in myelosclerosis which is not purely a mechanical crowding out of the bone marrow, there is stimulation of everything—red cell formation and white cell formation?

Dr. Carl V. Moore: That idea may have some validity. One observation that might be used in support of this theory is that some patients with agnogenic myeloid metaplasia may initially develop a polycythemia with red cell counts as high as six and one half or seven million.

Dr. Alexander: May one have agnogenic myeloid metaplasia without disease of the bone marrow? Does it occur independently at any time?

Dr. Carl V. Moore: Yes, it occurs in some individuals who apparently have a hypoplasia of the bone marrow. One other thing that may be mentioned, Dr. Alexander, is that in the literature a suggestion has been made that many of these individuals give a history of exposure to benzene. In the room where this patient slept there was a constant odor of benzene and gasoline. Although the history is not accurate, there is the possibility that he had considerable prolonged ex-



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posure to benzene. This disease is different from usual benzene poisoning which is a hypoplasia of the bone marrow. If it is caused by benzene it is difficult to understand why, in one case, benzol poisoning will give a hypoplastic anemia and in another case it will give a hypoplastic anemia with myelosclerosis and agnogenic myeloid metaplasia, and in another case will give true myelogenous leukemia.

DR. REINHARD: There is one other suggestion that is purely speculative. The patient's dietary habits were amazingly poor and some of the changes may be related to deficiency states.

DR. CARL HARFORD: Dr. Alexander, Dr. Moore mentioned a "normal break" between the bone marrow and the peripheral blood. I would like to know what he means by this "normal break."

DR. CARL V. MOORE: No one knows what regulates the discharge of white cells to the peripheral blood, but under normal conditions immature cells do not enter the blood. Perhaps anatomic structure accounts for the lack of a break in hemopoiesis in the spleen. The capillary structure in the spleen is unique and quite different from that of the bone marrow, is it not, Dr. Moore?

DR. ROBERT MOORE: The red sinusoids are quite unique and not found in any other tissue.

DR. W. BARRY WOOD: Dr. Alexander, I would like to question the statement made concerning the rapid course in this patient in comparison with the cases cited in the literature. This man had anemia when first seen in 1930 and he was not seen again until 1942, so we have no information as to what went on in that twelve year period.

DR. ALEXANDER: You are quite right. The rapidity during the last year and a half of his anemia was what impressed me. Dr. Massie, insofar as the cardiac status of the patient is concerned, do you believe that his heart contributed appreciably to the edema which was present on his second admission?

DR. EDWARD MASSIE: Judging from physical findings he had heart failure, cardiac enlargement, increased circulation time, and increased blood pressure. But the degree of failure that he had could not account for the ascites and for the rather marked edema below the diaphagm. With increased cardiac size, pericardial effusion might be suggested, but this was ruled out on the basis of the cardiac configuration. Perhaps there was some inherent disease of the liver, as cirrhosis or an infiltration by abnormal cells.

DR. ALEXANDER: Dr. Bulger, do you believe that liver disease contributed to his edema?

DR. HAROLD BULGER: Not appreciably. He had an albuminuria. If his edema was caused by the albuminuria I would expect a depletion of the serum protein.

DR. ALEXANDER: If one has nutritional anemia, does one expect to find blood serum proteins of 5.8 and 4.9 gms.?

DR. REINHARD: The malnutrition may have influenced the capillary permeability, thus causing an increase in the fluid in the tissues.

DR. ALEXANDER: Dr. Wood, what is your opinion about the cause of the patient's edema?

DR. W. BARRY WOOD: I am impressed by the fact that the edema subsided each time the patient was given blood transfusions. I think that there is such a thing as edema caused by pronounced anemia.

DR. ALEXANDER: What is the possibility of heart failure in this patient? When this patient first came into the hospital he had a normal heart. When he came in ten years later he had a large heart, hypertension and a loud rasping murmur heard in the mitral and aortic areas. He had been told he had Bright's disease and hypertension so I presume he had arterio-

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sclerotic changes in his heart. Do you agree, Dr. Massie?

DR. MASSIE: His hypertension was not marked and we do not know about the degree of arteriosclerosis. The cardiac configuration suggests cardiac hypertrophy which might be seen in hypertension. It does not suggest cardiac dilatation of anemia. He had other causes for cardiac failure—chronic anemia and malnutrition.

DR. ALEXANDER: This patient had a cough for many years. He coughed up blood in his sputum, and a large shadow was noticed in his lungs on fluoroscopic observation. What is your opinion of these findings, Dr. Goldman?

DR. ALFRED GOLDMAN: He evidently had chronic lung disease, a bronchitis or a mild bronchiectasis. The bloody sputum and the shadow in the lung associated with severe pain is rather suggestive of an infarct.

DR. ALEXANDER: When we see the tissues, do you believe we will find myelofibrosis, Dr. Moore?

DR. CARL V. MOORE: We will find either myelofibrosis or large areas of fatty change in the bone marrow, I am not sure which.

DR ALEXANDER: Then you believe we will find a myeloid metaplasia of the spleen and liver?

DR. CARL V. MOORE: And of the lymph nodes.

DR. WOOD: Dr. Alexander, do you believe that this patient might possibly have had metastatic carcinoma involving the bone marrow and thus causing this same picture of agnogenic myeloid metaplasia?

DR. ALEXANDER: I believe Dr. Moore said it is the most common lesion. However, the bone marrow biopsy on repeated occasions indicated an increase of fibrous tissue so that I would favor the diagnosis of myelofibrosis.

ANATOMIC DIAGNOSIS

Agnogenic myeloid metaplasia involving the bone marrow, liver, spleen and lymph nodes.
Myeloid hyperplasia of the bone marrow.
Splenomegaly (1,950 grams).
Hepatomegaly (2,590 grams).
Recent infarcts of the spleen.
Arteriolar nephrosclerosis, moderate.
Hypertrophy and dilatation of the heart (515 grams).
Ascites (2,000 cc.).
Hydrothorax, left (1,000 cc.).

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: This patient had a moderate degree of arteriosclerosis with secondary changes as the result of it. There was a decrease in the size of the kidneys to two thirds of the normal value and an increase in the size of the heart to about 50 per cent above the upper limit of normal. In association with that, there were edema and transudation of fluid into the serous cavities. This transudation did not follow the usual pattern in that it was more marked on the left side—a left hydrothorax of 1,000 cc.—and edema of the lower extremities more marked on the left than on the right.

As to the nature of the disturbance of the hemopoietic tissue we have little information from the gross observation. The bone marrow throughout the long bones and in the trunk was red with the exception of the middle of the long bones. The marrow from the humerus was in part red; this marrow should normally be yellow and should remain yellow except in the most severe demands upon the bone marrow. The lymph nodes were small and the enlargement of the spleen and liver were not characteristic of any disease. There was no diffuse infiltration of any types of cells into the bone marrow.

I do not believe the patient had myeloid leukemia because the bone marrow was not sufficiently nor uniformly involved. There was distinct differentiation of the cells up through the most mature type. The architecture of the spleen was not obliterated. The extramedullary foci were associated with a few cells of the erythropoietic series. There is one possibility that this might be a myeloid leukemia according to the observation made by Dr. Sabin and her associates, published in *The Journal of Experimental Medicine*, volume 40, 1924. She observed that patients with myeloid leukemia may show differentiation of cells toward maturity, especially the transformation from myeloblasts to myelocytes, when given blood transfusion. This patient received many blood transfusions and there is that possibility. However, there are good reasons on other grounds for rejecting the diagnosis of myeloid leukemia.

There is no basis for a diagnosis of myelofibrosis or osteosclerosis in that the bone marrow did not show obliteration by connective tissue except in small isolated foci and there was no overgrowth of bone. The changes in the liver, spleen and lymph nodes were quite consistent with the diagnosis of agnogenic myeloid metaplasia. The bone marrow changes were not identical with those described by Jackson and Parker. May I call your attention to the article by Jackson, Parker and Lemon, "Agnogenic Myeloid Metaplasia of the Spleen" in the June 13, 1940, issue of the *New England Journal of Medicine*?

THE COORDINATION OF MEDICAL AND BLUE CROSS PLANS

LESTER H. PERRY

HARRISBURG, PA.

One of the most important problems facing many prepayment medical plans concerns the manner in which they shall cooperate with Blue Cross organizations. In approaching this problem, we must first of all recognize the more basic problem we are all trying to solve. That problem is to equalize the financial impact of sickness. It is generally agreed that the answer to this problem lies in the application of the insurance formula to the cost of medical care. There is considerable disagreement, however, about how such an insurance plan should be administered. Some people believe that a compulsory governmental plan is the answer. Others believe in the voluntary approach afforded by Blue Cross and medical prepayment plans.

In order to win the support of the public for such voluntary plans, it is essential that these plans do a good job without delay. No one should be deluded about the present success of these voluntary efforts. The December 1944 issue of *Fortune* magazine carries a feature article entitled "U. S. Medicine in Transition." One of the conclusions reached by the editorial board of *Fortune* is that "Blue Cross is popular and solid but its scope of benefits is so limited that it can contribute little to the extension of medical care required by the country." In many respects Blue Cross has done a remarkable job, but Blue Cross plans are only a partial answer to one small segment of the total problem. To date voluntary medical plans have provided an even less complete solution to another segment of the problem. The vast majority of people are not members of either plan, and the combined coverage of the two plans still leaves large areas in the field of medical care untouched.

The common goal of both Blue Cross and voluntary medical plans is to solve the basic problem more satisfactorily than any government plan. In order to accomplish this goal, Blue Cross and medical service plans must work harmoniously and effectively together. If these plans work independently, each will continue to

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attack only a small segment of the basic problem. They will also encounter such difficult administrative problems as dual payroll deductions, confused public relations and uneconomical duplication of effort. If these plans work at cross purposes, they will merely fertilize the soil in which the seeds of federalized medical care are being planted. Mutual cooperation, therefore, is essential to the optimum success of both plans—Blue Cross as well as medical.

Cooperation is a two way, give and take proposition. It requires adjustments on both sides and continued respect for the rights and privileges of both groups involved. In real cooperation there can be no attempt by either organization to dominate the affairs of the other.

In general, the relationship between Blue Cross and medical plans follows one of these four patterns:

A. *No coordination of activities.* Under this arrangement each plan operates independently of the other.

B. *Separate corporations and separate administrative staffs.* Under this arrangement Blue Cross contracts to perform certain functions for the medical plan—usually publicity, sales promotion, collection of premiums and service to member groups. The medical plan handles its own claims, its relations with the medical profession and its general books of account. The relationship between the two corporations is that of independent contractors.

C. *Separate corporations but identical administrative staffs.* Under this arrangement medical service is administered completely by the Blue Cross plan. The medical plan exists in theory, but it has no personnel. The administrative staff of the Blue Cross plan serves also as the administrative staff of the medical plan.

D. *One corporation.* Under this arrangement medical service is included as part of Blue Cross coverage. The medical plan, as an independent organization, does not exist.

Although some of the earliest medical plans did not originally contemplate joint operation with Blue Cross, the advantages of mutual cooperation soon became apparent to all concerned. Consequently, all of the larger medical plans now cooperate with Blue Cross plans. In a few localities cooperation has reached the extreme of complete amalgamation. This is the case in Delaware, Chapel Hill, N. C., and Huntington, W. Va.

Most medical plans are coordinated with Blue Cross on the basis of arrangement B or arrangement C. The number of plans in each of these categories is about equally divided, but the number of subscribers covered by plans operating under arrangement B (separate corporations and separate administrative staffs) is approximately three times the number covered by all other plans combined.

There is practically no disagreement among those interested in either Blue Cross or medical plans with regard to the advantages of joint operation. The argument centers around the degree to which Blue Cross should manage the affairs of medical plans. In Delaware, for example, the medical profession apparently believes that only one corporation is necessary. In Colorado, Massachusetts, New York and a few other places there are two corporations but the profession has apparently agreed to sacrifice separate administrative identify and to relinquish all executive management to the Blue Cross staff. Even in California, Michigan, New Jersey and Pennsylvania—which have the most moderate type of cooperative arrangement—the medical plans have turned over to Blue Cross management the responsibility for certain of their important functions.

Since Blue Cross plans were in the field first and, as a consequence, had administrative organizations already set up, it was only natural that cooperation developed in the manner in which it did; namely, that Blue Cross organizations were engaged to perform certain services for medical plans. It would have been just as logical for medical plans to perform these services for Blue Cross had the order of precedence been reversed.

The important fact to note, however, is that under all three methods of cooperation every concession required has been made exclusively by the medical plans. In an effort to combat a fast moving social trend which threatens to engulf both these voluntary efforts, even the most conservative medical plans have willingly entrusted to Blue Cross management the important functions of public relations, sales, premium collection and service to member groups. Blue Cross, on the other hand, has relinquished none of its authority or responsibility; in fact, it has never been asked to do so. No medical plan in our knowledge has ever proposed that it handle even the smallest fragment of Blue Cross activity.

Concession and compromise on the part of medical relations, single payroll deductions and economy of plans are desirable in order to achieve unified public operation. However, many thoughtful physicians are sincere in their belief that it is neither necessary nor desirable for medical plans to surrender their corporate existence (as required by arrangement D) or their separate administrative identity and all executive management (as required by arrangement C).

Medical leaders in the states of California, Michigan, New Jersey and Pennsylvania believe that cooperative arrangement B is the most desirable. Following are some of the more important reasons why they have reached this conclusion:

ARGUMENTS FOR ARRANGEMENT B (SEPARATE CORPORATIONS AND SEPARATE STAFFS)

1. It provides for unified public relations and thereby solves one of the basic problems of independent operation.

2. It permits a single payroll deduction and thereby solves one of the most important practical difficulties of separate operation.

3. It promotes desired economy of operation through the use of a single sales force and the joint collection of premiums.

4. It allows for the assumption of active responsibility and authority by the medical organization in the operation of its own plan. This is a distinct advantage according to the conclusion of A. M. Simons and Nathan Sinai as reported by the Committee on the Costs of Medical Care: "A comparative study of many health insurance systems seems to justify the conclusion that the evils of insurance decrease in proportion to the degree that responsibilities, with accompanying powers and duties, are intrusted to the medical professions."

5. This type of arrangement is in successful operation in the two oldest and largest medical plans in the country—California and Michigan.

The chief arguments against arrangement B, together with comments on these arguments, are as follow:

ARGUMENTS AGAINST ARRANGEMENT B

1. It is sometimes stated that in Michigan, which has the outstanding medical plan in the country, the two organizations are not actually operating as separate units in accord with the terms of their current joint operations agreement.

This statement has been categorically denied in recent communications received from officials of both plans in Michigan. The charge is a serious one, and—if true—it should be supported by evidence, none of which has been thus far produced.

2. It is said that the trend is away from arrangement B and in the direction of arrangement C—complete Blue Cross management of medical plan administration.

That assertion may be true, but it has no merit as an argument because trends can be either good or bad. There is, for example, a much more powerful trend toward a compulsory governmental plan for both hospitalization and medical care. If we are simply to follow trends, why not follow that one?

3. It is argued that arrangement B is not as economical as arrangement C.

This may be true to a small degree—perhaps 1 or 2 per cent. But real saving in the cost of administration occurs between arrangement A (independent operation) and arrangement B. Under arrangement B all important functions which would otherwise have to be duplicated are administered by the Blue Cross plan. This includes publicity, sales promotion, collection of premiums and service to member groups, all jobs which would have to be done twice under independent operation. But that is not true with claims each of which has to be processed only once no matter who does the job. There must be a medical director with an adequate staff to handle medical claims,whether this work is done by the medical plan or by the Blue Cross plan. To combine the two claim departments may effect some slight saving, but it would never reach major proportions.

4. Physicians, it is said, are not qualified to manage a business enterprise.

Modesty is commendable, and it is wise to acknowledge human limitations; but such an admission on the part of the medical profession would carry self abnegation to unwarranted depths. The American Medical Association, most of the state medical societies and even the larger county medical societies conduct many enterprises in which good business procedure is essential. Publication activities of these medical organizations—to mention only one feature of their work—involve millions of dollars annually; yet control of medical societies is vested in boards composed exclusively of physicians who discharge their responsibilities with success. The medical plans in California and Michigan are being operated successfully by physicians.

Blue Cross boards are composed of educators, contractors, hospital administrators, physicians, philanthropists, bankers, politicans, merchants and representatives of a hundred and one other fields of human endeavor. Executives of successful Blue Cross and medical plans have likewise come from many fields, including accounting, insurance, hospital administration, medical society work, the produce business, governmental service, the practice of medicine, sales, statistics and welfare work.

Are contractors or bankers or politicans or merchants any better qualified to determine the policies of medical plans than the medical profession?

There is probably not a Blue Cross board member in the country who could manage the statistical department of his own plan. All such boards must buy legal advice, executive ability, actuarial knowledge, statistical training and a host of other specialized skills. Boards of directors composed of physicians can buy all these things just as easily as boards composed of laymen. Physicians are not expected to do the job of executive management themselves.

5. The point is made that good business administration demands unified rather than dual authority.

Every one agrees that single authority is a fundamental of successful business administration. However, arrangement B provides for just that. Michigan Hospital Service, for instance, contracts with Michigan Medical Service to perform certain functions for the medical plan. Michigan Medical Service has no control over the employes of Michigan Hospital Service, which operates a clearcut, straight line organization headed by its executive director, who retains complete and exclusive authority with no interference whatever by the medical plan. The relationship between the two organizations is simply that of independent contractors. Real twin headed authority, which is admittedly unhealthy, exists only in arrangement C.

6. The fear is sometimes expressed that Blue Cross plans might jeopardize the good will of their subscribers if they act as the sales agency for medical service but do not also settle medical claims.

The best proof that this fear is unjustified lies in the success of Michigan Hospital Service, whose officers wrote under date of Dec. 8, 1944 that "there has been

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no difficulty with Michigan Hospital Service subscribers because it does not process and approve the claims of Michigan Medical Service."

This method of cooperation, in fact, has enabled Michigan Hospital Service to become the second largest Blue Cross plan in existence. It ranked third nationally in net enrolment gain for the third quarter of 1944. These facts not only dispel apprehension about arrangement B but, on the contrary, emphasize that it operates to the advantage of the Blue Cross plan.

There seems to be a tendency for most of the newly formed medical plans to follow cooperative arrangement C in their relationship with Blue Cross plans. Perhaps there are some advantages to this type of arrangement, but there are also insidious hazards involved which should be seriously considered. Following are the most important:

HAZARDS IN ARRANGEMENT C (TWO CORPORATIONS, ONE STAFF)

1. Arrangement C necessitates dual authority at the top, which is unanimously condemned.

Under this type of arrangement the chief executive is in charge of both corporations and is therefore obliged to report to two boards of directors. He and his staff must serve two masters, and this has never been accomplished to the satisfaction of all concerned. Such an arrangement may seem to work well for a brief period, but the test of time will reveal its inherent weaknesses.

2. In actual practice, if the interests of the two organizations do not exactly coincide, the executive and his staff will favor the dominant organization.

In the beginning this would put the medical plan at a disadvantage; later it might put the Blue Cross plan at a similar disadvantage. One condition is as unhealthy as the other, and neither should be permitted to develop.

3. This arrangement creates a situation under which the Blue Cross plan, which provides none of the funds and underwrites none of the losses for the medical plan, spends all of the money and manages all of the activities of the medical plan.

According to Jay C. Ketchum, executive director of Michigan Medical Service and former deputy insurance commissioner for the state of Michigan, such a condition would be intolerable to the medical plan. "Claim administration," he says, "must remain in each plan for its own subscribers."

4. Arrangement C puts the medical plan at the mercy of any weakness in the management of the Blue Cross plan because—with no active organization whatever of its own—it has no other choice but to rely with pathetic impotence on the hospital plan with which it is associated.

Blue Cross plans in general have done a good job, but neither their officials nor their staffs are immune to the weaknesses of other human beings. What opportunity would the board of directors of the medical plan have under this arrangement to correct an unsatisfactory condition in the Blue Cross method of administering medical activities, particularly if the two boards disagreed? To make the attempt may bring the organizations into a headlong clash. Ultimately the medical plan would have to acquiesce for the obvious reason that it would have no alternative.

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5. Arrangement C encourages the deterioration and ultimate dissolution of the medical plan.

This is true because arrangement C is based on the fallacious theory that an organization can remain strong and vigorous when stripped of all activity and responsibility. That is just as impossible with a business organization as it is with a physiologic organism. To be sure there will be a theoretically active board of directors for the medical plan; but the organization they represent will be teamed with a stronger one which shoulders all the burdens of both. In that rarefied atmosphere the members of the board of the medical plan will lose interest because of lack of responsibility. Their participation will gradually become more and more passive, and the medical plan itself will atrophy like a muscle from inactivity. The final result will be complete absorption by Blue Cross.

6. The gravest danger of arrangement C is its irreversible finality.

Theoretically any of the four arrangements can be tried experimentally and, if found unsatisfactory, discarded in favor of another method of coordination. Unfortunately, however, it does not work out this way in actual practice. Modifications in the direction of increased Blue Cross control can be made easily, but modifications in the other direction are difficult and, once large volume is achieved, virtually impossible.

In Michigan, for example, arrangement B is in effect. It would be a simple matter, administratively speaking, to change to arrangement C or even to arrangement D. Michigan Hospital Service could completely absorb Michigan Medical Service at a moment's notice. Blue Cross would simply take over the assets and equipment of the medical plan and continue to employ as many of the hundred-odd employes of Michigan Medical Service as were needed in the new setup.

To change from cooperative arrangement B to completely independent operation, however, is a different matter. Michigan Medical Service with three quarters of a million subscribers would be obliged to start from scratch in the matter of public relations, sales promotion and premium collection. That would be difficult. But the problem which would make the task impossible involves the securing of two payroll deductions where only one exists today.

The likelihood that the plans in Michigan will change in either direction seems remote. However, because of the hazards of arrangement C, many persons believe that medical plans operating on that basis will want to change to arrangement B at some future time. If that comes to pass after these plans have secured real volume, they will find that they have been traveling on a one way street. For example, assume that arrangement C was now in effect in Michigan. That means that the medical plan would exist on paper only, with no working personnel, no equipment, no administrative setup whatever, nothing but a board of directors. To effect a change from arrangement C to arrangement B, this board of directors would face the job of administering surgical and obstetric care to three quarters of a million persons. And they would have nothing to start with! Simply to state the problem is to prove that it could not be solved.

Arrangement B can be started as an experiment which, if proved unsatisfactory, can be changed to arrangement C or arrangement D at any time in the future. Arrangement C, however, vitually eliminates the possibility of changing in the opposite direction. To all practical purposes it involves final and irreversible action rather than experimentation. This con-



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**Laryngoscope, 1935, XLV, No. 2, 149-154.

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dition should be clearly understood by everybody interested in medical service plans.

Arrangement C cannot long endure. Ultimately it must move in the direction of either arrangement B or arrangement D. Since large volume will eliminate the possibility of moving toward arrangement B, the only course open is complete amalgamation with Blue Cross. The choice, therefore, really lies between arrangement B and arrangement D, and this alternative should be realistically faced at the outset.

If it can be proved that Blue Cross should completely administer medical as well as hospital service, let us honestly admit that fact. Then let us take positive steps to disband medical plans in a forthright manner and cooperate with Blue Cross in an effort to add medical service to their coverage. If it is not proved that Blue Cross should completely administer medical service, then let us strive to maintain the independence of medical plans. That can be done only by having them continue to be organizations with real responsibilities. Under any other arrangement they will deteriorate. It would be a mistake for the medical profession to pave the way for the dissolution of medical plans by default.

Granted that there may be some merit to the arguments in favor of arrangement C (as there usually is in such differences of opinion), the fact remains that medical plans which desire arrangement B are asking nothing more of Blue Cross than the right to retain a little more responsibility for the conduct of their own affairs than some people think they should have. Medical plans are requesting no voice whatever in the management of Blue Cross activities. This fact, coupled with the knowledge that when a medical plan begins to cooperate with Blue Cross it can move in only one irreversible direction, points inevitably to arrangement B as the soundest and most equitable method of beginning to work together cooperatively. One may enter lightly on a course of action which involves no permanent commitment; but in areas of conduct which require irrevocable decisions, anything less than judicious consideration and temperate action is unworthy of mature minds.

The justification for this point of view will be recognized by all fair minded men, who can therefore be expected to regard the attitude of the medical profession with sympathetic understanding. Helpful cooperation should then follow as a natural result.

Blue Cross has been accused of attempting to dominate medical service plans. This accusation has been emphatically denied by Blue Cross officials. Whether or not it is justified remains to be seen. However, in justice to those who make such charges, it must be admitted that the trend has been toward increased control of medical plan activities by Blue Cross organizations.

If Blue Cross officials are sincere in their denial of this accusation and if they want to cooperate with medical plans in an effort to preserve the voluntary principle under which both organizations operate, they have the opportunity to prove their sincerity to all members of the medical profession. All they have to do is to acknowledge that real cooperation is a two sided proposition which requires each contracting party to give as well as take in the readjustment process. Once this fact is acknowledged by all concerned, representatives of Blue Cross and medical plans can, by working together, solve the problem of coordination.

Arrangement B will work. In fact, it has been working for five years in the medical plan which has more subscribers than all other plans combined. Here is what the officers of the cooperating Blue Cross plan say about this arrangement in a communication dated Dec. 8, 1944: "Michigan Hospital Service would recommend very highly this type of cooperation to any Blue Cross plan."

230 State Street



From where I sit *by* Joe Marsh

Definition of a Great Man

At Bill Webster's the other evening, we were kidding Bill about his children always saying that their pop's "a great man." Dr. Walters came to Bill's rescue.

"The kids are right," chuckles the doctor. "Everybody in America's a great man. You just can't be part of greatness and not share in it."

In America (he argues) things that used to belong only to the great are common property; a share in government through the right to vote; individual liberties guaranteed by constitution; freedom to speak one's mind; to work at what one pleases; to choose what one likes to eat or drink . . . whether beer or buttermilk.

But from where I sit, there's one important point to add . . . to make the doctor's definition ring true. We must be worthy of this greatness. We must have the humility to appreciate these blessings . . . never abuse them with intolerance, intemperance, or indifference.

Joe Marsh

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MARCH, 1945

EDITORIALS

ANNUAL SESSION CANCELLED

The 1945 Annual Session of the Missouri State Medical Association, which was scheduled to be held in St. Louis, April 22, 23 and 24, has been cancelled in accordance with the ruling of the Office of Defense Transportation. The cancellation includes the House of Delegates.

MISSOURI MEDICAL SERVICE

Details of setting up the administrative facilities, approving of contracts and clearing of technicalities of Missouri Medical Service have moved slowly and it is regretted that more has not been totally cleared to present to members. It is still hoped that soon entire information can be furnished.

An article by Lester H. Perry, Harrisburg, Pennsylvania, on "The Coordination of Medical and Blue Cross Plans" is reprinted from *The Journal of the American Medical Association* on page 161. The article explains several plans of cooperation but recommends the plan that Missouri Medical Service is attempting to work out in Missouri, plan termed "B" in the article.

THE HILL-BURTON HOSPITAL BILL

Following the investigations of the Pepper Subcommittee on Wartime Health and Education of the Senate Committee on Education and Labor, Senate Bill 191, the Hill-Burton Hospital Construction Bill, was introduced in the U. S. Senate on January 10. Preliminary report on the study of the committee was given in the January issue of The Journal.

The declared purposes of the pending bill are: first, to assist the several states to inventory their existing hospitals, as that term is defined in the bill, to survey the need for new construction and to develop programs for construction of such public and other nonprofit hospitals as will, in conjunction with existing facilities, afford the necessary physical facilities for furnishing adequate hospital, clinic and similar services to all people; and, second, to construct public and other nonprofit hospitals in accordance with such programs. The term hospital is broadly defined to cover all special hospitals and public health centers.

A Federal Advisory Council would be composed of the Surgeon General of the Public Health Service as chairman ex officio and eight members. Total appropriations for the fiscal year ending June 30, 1946, of $110,000,000 are proposed of which $5,000,000 would be allotted to the several states for surveys and planning and $100,000,000 for the construction of hospitals and related facilities. Thereafter such sums for construction and administrative purposes will be authorized for each fiscal year as Congress may determine necessary.

The amount to be made available for surveys and the development of programs would be allotted by the Surgeon General to the several states on the basis of their respective populations, financial needs and such other factors as he finds relevant.

In order to obtain any of the Federal money made available for surveys and for the development of construction programs, a state must make an application to the Surgeon General. The application must (1) designate a single state agency as the sole agency to supervise the survey and to develop the program; (2) provide for the designation of a state advisory council to include representatives of nongovernmental organizations and of state agencies concerned with the operation, construction or utilization of hospitals; (3) provide for compliance with standards prescribed, and (4) provide that the state agency will make such reports in such form and containing such information as the Surgeon General may from time to time require and comply with such provisions as he may from time to time find necessary to assure the correctness and verification of such reports.

Before a state may receive any benefits from the Federal money made available for construction programs, it must submit a state plan to the Surgeon General for approval. Briefly, a state plan to be approved must (1) designate a single state agency; (2) give satisfactory evidence that the agency will have authority to carry out such a plan; (3) set forth a hospital construction program; (4) set forth the relative need for the projects; (5) provide method of administration satisfactory to the Surgeon General; (6) provide that state agency will make reports; (7) provide that the state agency will review program from time to time and recommend necessary modifications.

NEWS NOTES

Dr. H. M. Kendig, Sikeston, was the guest speaker at a weekly dinner meeting of the Sikeston Kiwanis Club at Sikeston in December and spoke on "Penicillin."

Dr. Robert Mueller, St. Louis, spoke before the Clayton Rotary Club on January 25.

Drs. W. A. Bloom, Fayette; Edwin C. Schmidtke, Columbia, and James Stewart, Jefferson City, spoke at a Fifth District Training School conducted by the Field Army of the American Cancer Society at Jefferson City on February 7 and 8.

The State Board of Health has announced that under the EMIC program physicans are being paid for immunizations against smallpox, diphtheria and whooping cough for infants less than 1 year of age whose fathers are enlisted men in the 4-5-6-7 pay grades.

Dr. Morris B. Simpson, Kansas City, was elected president of staff officers of St. Mary's Hospital at a meeting on January 23. Dr. Herbert L. Mantz was elected vice president and Dr. Michael Bernreiter, secretary-treasurer.

The following program will be presented at a meeting of the St. Louis Surgical Society at Jewish Hospital, St. Louis, on March 21: "Experiences with Paravertebral Block in the Treatment of Peripheral Vascular Disease," Dr. Paul S. Lowenstein; "Obstruction of the Sigmoid Due to Hypertrophy of the Prostate," Dr. Jules H. Kopp; "Idiopathic Ileus of the Small Intestines," Dr. G. E. Gruenfeld; "Two Cases of Pneumonectomy," Dr. J. Gilford; "Traumatic Aneurysm of the First Portion of the Left Vertebral Artery," Dr. C. J. Heifetz; "Surgical Experiences in the Solomon Islands," Dr. I. C. Middleman.

MISSOURI DOCTORS IN SERVICE

Lt. Col. George C. Bess, St. Louis, has been given the second Distinguished Service Badge. He was former chief surgeon of a heavy bomber group but is now serving as Chief Medical Inspector of the Fifteenth Army Air Force in Italy.

Dr. Karl Dietrich, Columbia, has been promoted to a major. He is stationed at Chickasha, Oklahoma, as chief of septic surgery at Corden General Hospital.

Captain Edward N. Zinschlag, Glendale, was among volunteers who were sent to the relief of troops at Bastogne, Belgium, by glider.

Lt. Comdr. E. Kip Robinson, Kansas City, has been transferred from sea duty to a naval hospital in San Francisco. He was in Kansas City recently on shore leave.

Major John A. Growdon, Kansas City, was awarded the bronze star with a citation by Lt. General Courtney Hodges. He performed operations two hours after he waded ashore on June 7, 1944, in France. The citation reads, "He has administered his duties in an outstanding manner from D Day to November 21, in France, Belgium and Holland."

Major Joseph Backlar, St. Louis, was home for short leave recently. He has accompanied troops to Greenland, Iceland, Africa and England.

Navy Lt. Sol Weisman, St. Louis, has received the Bronze Star for meritorious achievement in the Saipan and Tinian campaigns.

Captain Douglas Kelling, Waverly, has been promoted to a Major. He is with the 45th Division in France.

Major Paul F. Max, St. Louis, is commanding officer of the Army's Thirty-fourth Station Hospital in Italy which, according to an Army dispatch, has cared for 12,000 wounded and sick soldiers in twenty-one months of operation overseas.

Major Sol I. Frankel, St. Louis, former regimental surgeon with an infantry division in Italy, now stationed at an Army camp in Washington, has received the Bronze Star for meritorious service in action near Santa Maria Infante last May.

Captain Jordan Kelling, Waverly, has been promoted to a Major. He is located at Camp Shelby, Mississippi.

Captain Karl L. Keffler, St. Louis, was with Gen. Douglas MacArthur when American forces recently landed on Luzon.

Pictures of several members of the Twenty-first General Hospital, under the command of Col. Lee D. Cady, St. Louis, appeared in St. Louis newspapers on February 10. The Hospital is now caring for members of the American Seventh and French First Armies in the Sixth Army Group sector in France.

Lt. Comdr. Marcel I. Mooney, Kansas City, has been awarded the Bronze Star with a citation which reads: "He distinguished himself by heroic and meritorious conduct in action with the enemy during a series of air raids on October 27, 1944, on ships at anchor near his ship. He boarded a burning gasoline ship as a member of a fire and rescue party. After ascertaining that casualties were taken care of, he remained on deck and assisted in fighting the blazing gasoline fire. During this period, which was at night, the ship was a natural target for the expected air raids. His actions throughout distinguished him among those performing duties of the same character."

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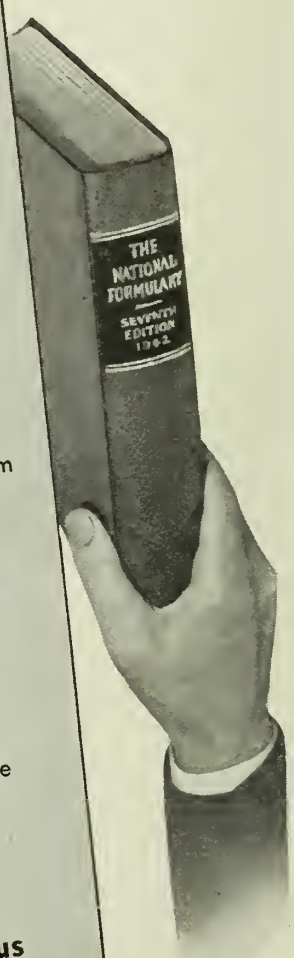
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Dr. John Walker Stewart, St. Louis, has been promoted from Lieutenant Colonel to Colonel.

Major Edgar Ross Kyger, Jr., Kansas City, executive officer of a medical unit in Belgium, has been awarded the Bronze Star for meritorious service.

Dr. Roy V. Boedeker, St. Louis, has been promoted from Major to Lieutenant Colonel.

Dr. George E. Moore, Fulton, has been promoted from a Major to a Lieutenant Colonel.

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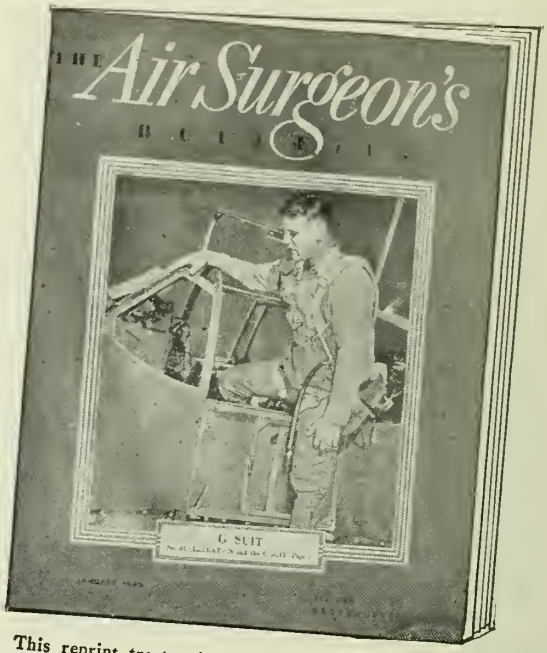
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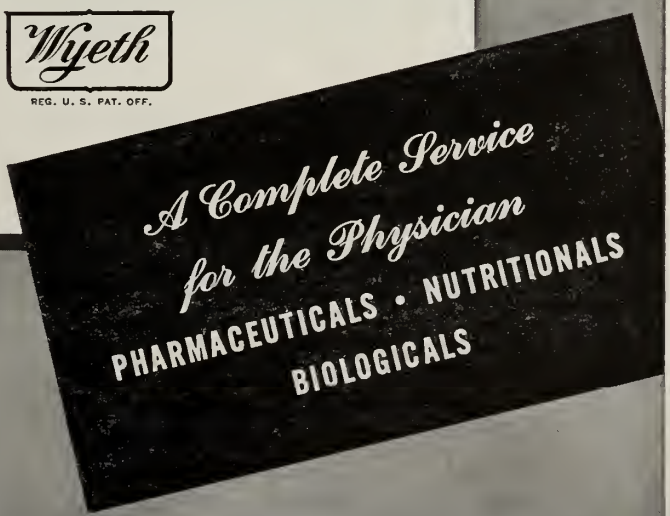
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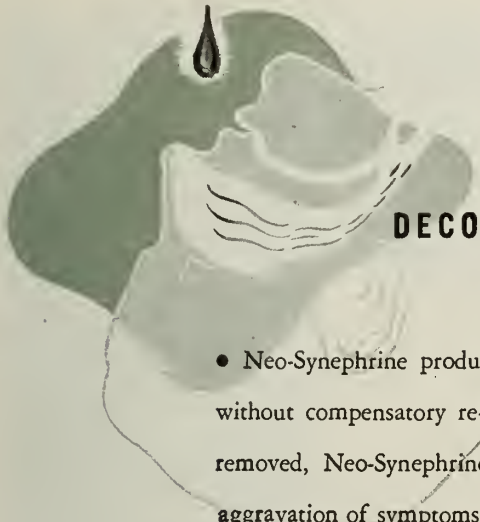
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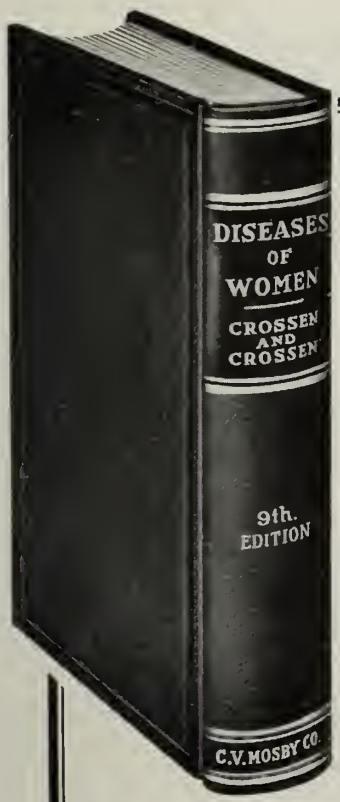
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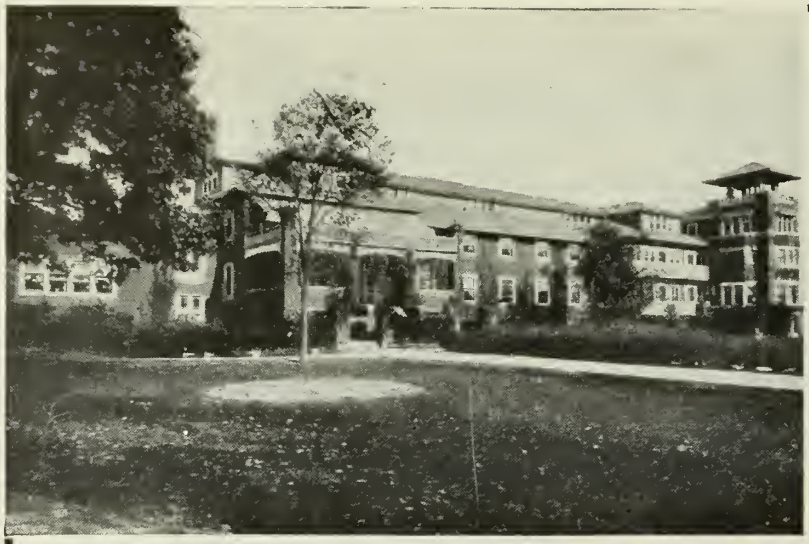
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Broken down into divisions, this survey provides a general picture of the selection requirements of our patrons, as we see them, with relation to the climate in which they live. For instance, in the middlewest, where a large number of patrons live on farms or in small country towns, the percentage of olivaceous skins is high. In Washington and Oregon we have the highest percentage of so-called normal skins, probably due to the moist and moderate climate. Here we also find the highest percentage of fair skins, with evidence of a more uniform type. While these averages have little bearing on our selection for the individual patron, they have a decided bearing on the development of products and their variations to suit the requirements of various types represented among our patrons.

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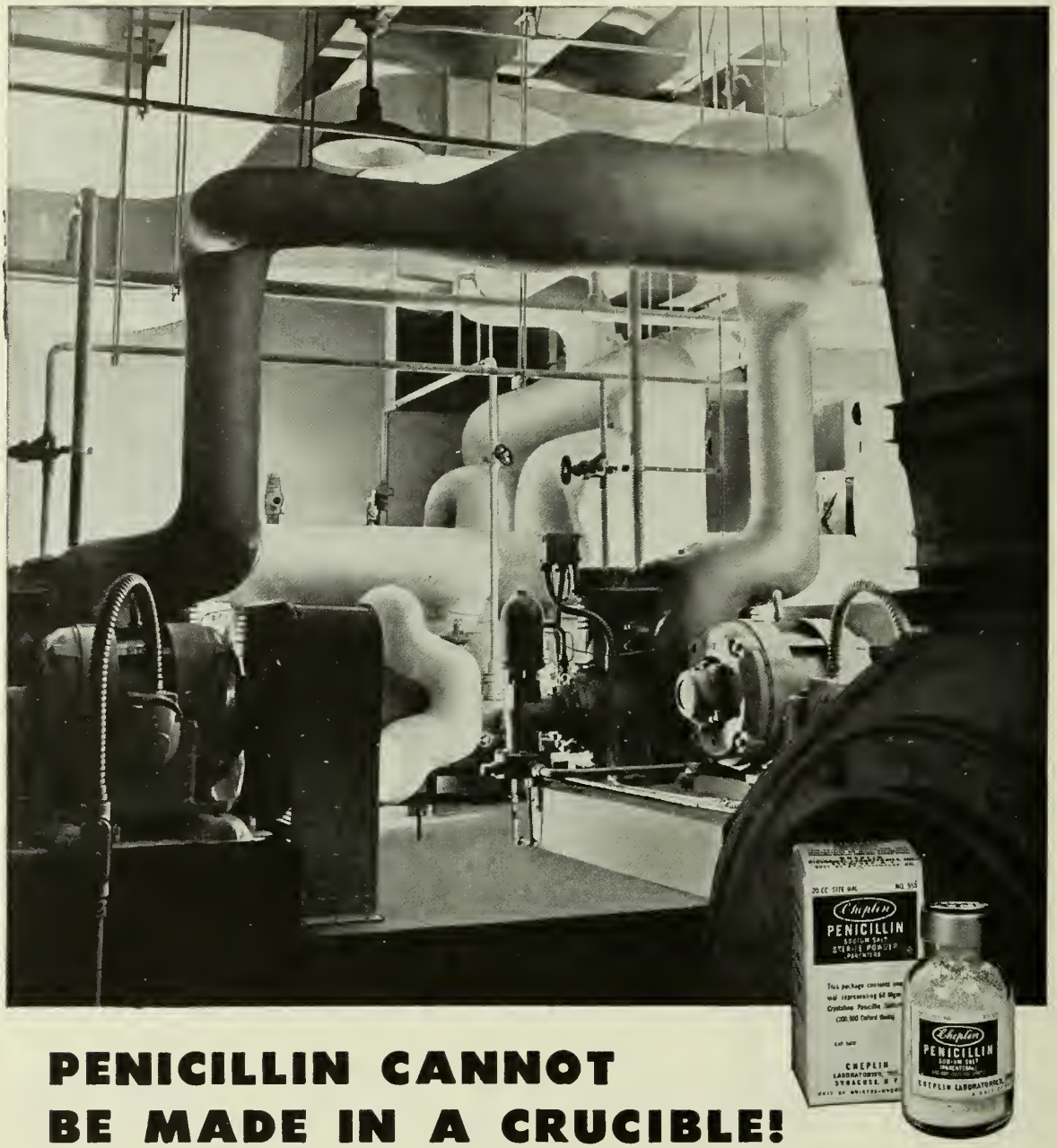
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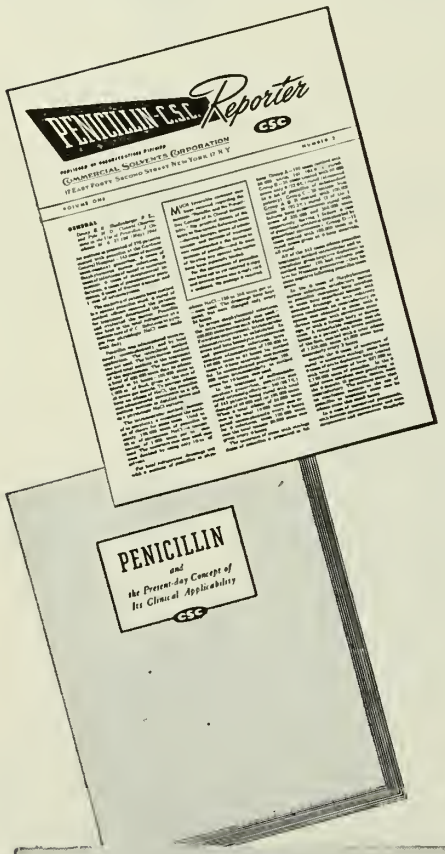
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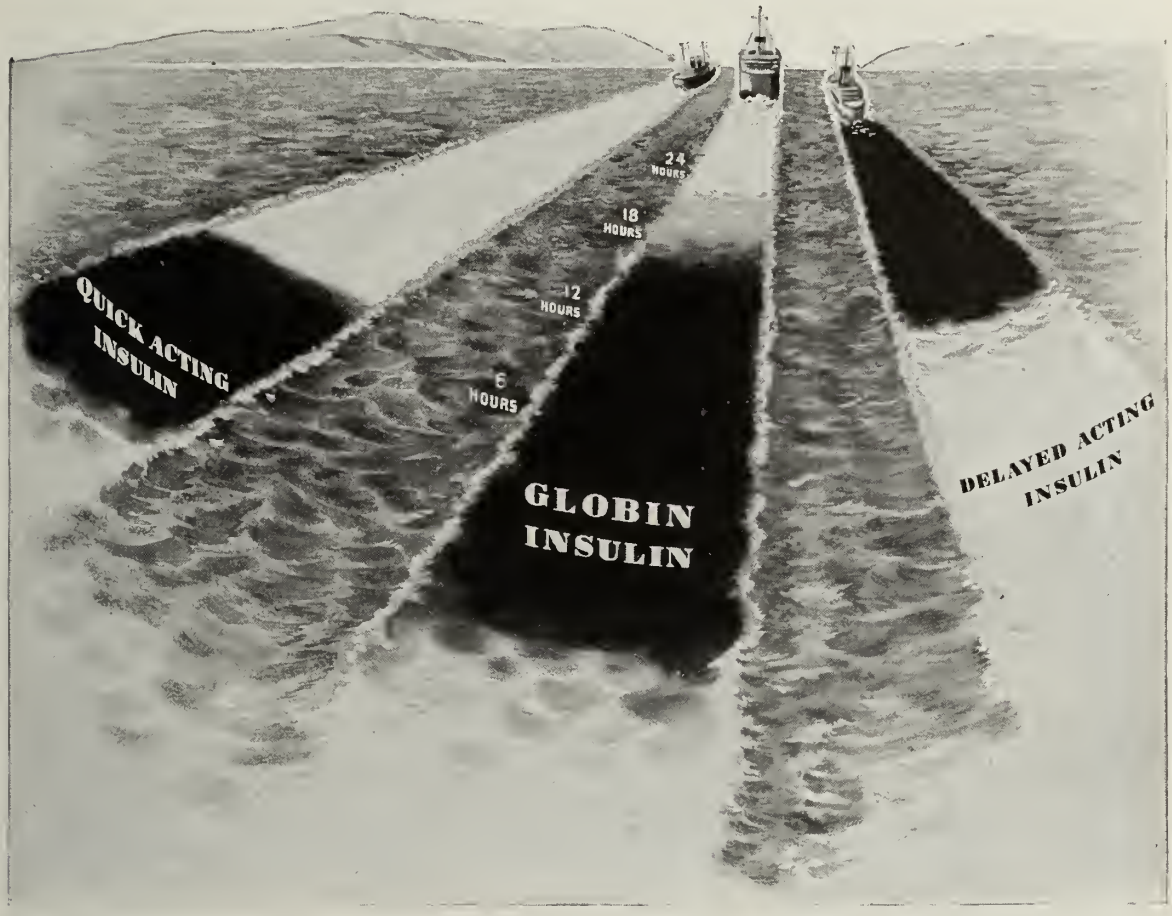
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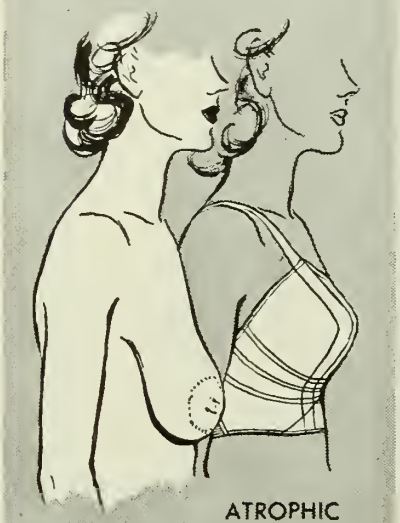


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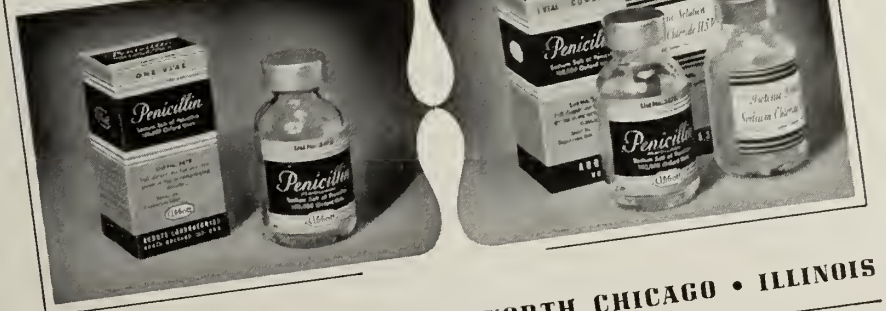
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WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT LEPROSY

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It is not outside the realm of probability that leprosy, heretofore a rare disease in the Middle West, may come to the notice of physicians in that part of the country within the next ten years at not infrequent intervals. Leprosy, as is well known, does not thrive in this area but it is not unreasonable to suppose that imported cases from among the fighting men and women may be brought to physicians' attention. Military forces in the South Pacific Islands, India and the Caribbean area are stationed in areas that have the highest incidence of leprosy in the world. Because of the long incubation period of the disease, it is very likely that when troops are mustered out of service, very few if any of the cases of leprosy, during the period of incubation, will be recognized by the medical examiners.

Leprosy has been introduced into the United States with various consequences. McCoy[1] stresses the point that in Texas, Louisiana and Florida, the presence of endemic cases has resulted in the establishment of foci in which the disease shows a strong tendency to perpetuate itself. In other parts of the country, the reverse is true, most of the cases being imported. In the midst of the present great social and economic upheaval, no one can predict what unexpected influence these factors may have on the future epidemiology of the disease.

PREDISPOSING FACTORS

Leprosy has the longest incubation period of any infectious disease known to man (from three to ten years). There is usually a history of close and protracted contact with an active leper or so-called open case (one in which the Mycobacterium leprae is present).

While it is true that susceptibility usually is inherited, many cases are on record in which persons from nonleprous areas have acquired the disease, there being no racial immunity. It is fortunate that a type of acquired immunity is present. This occurs in the tuberculoid or allergic type of leprosy resulting in spontaneous cure. Leprosy can be acquired at any age although more than 90 per cent of the infections occur in late childhood or adolescence. Those countries with a high leprosy index have large groups of people suffering from a low standard of living, poor nutrition and general debility.

BACTERIOLOGY

It is necessary to demonstrate the leprosy bacilli in the biopsy section of a suspected lesion or in the nasal smears in order to make an unequivocal diagnosis of leprosy. Failure to find the organisms labels the case as "leprosy suspected but not proven." The Mycobacterium leprae resembles the tubercle bacillus in many respects, even as to staining with the Ziehl-Neelsen stain, except in the following particulars: The lepra bacillus is more easily stained, occurs in clumps and is not pathogenic for guinea pigs.

CASE REPORT

H. K., male, white, aged 57, restaurant owner, entered Firmin Desloge Hospital complaining of painless ulcers on his legs and pigmented areas on the skin. The ulcers appeared about two years prior to admission to the hospital.

He stated that his health had been failing for the last three years and that he had lost 15 pounds in that time. About two years previously a macular rash appeared on the chest and abdomen which still persisted. A week previously he awakened one morning with a severe photophobia and blurred vision.

He had been under the care of several doctors. Just prior to admission a chiropractor had been treating him for "heart disease." In spite of various types of therapy, his condition was gradually getting worse.

The family history was normal.

He served in the Phillipine Islands for two years, from 1898 to 1900, with the U. S. forces there. As far as he knew he had no contacts with lepers while in that country.

Physical examination revealed a rather thin individual with an intense conjunctivitis and photophobia. The pupils were round, equal and regular, but there was a severe bulbar conjunctivitis, ciliary injection and slight cloudiness of both corneas.

The supra-orbital tissues were infiltrated and there was an alopecia of the outer thirds of the eyebrows. On the ears there were several light brownish fairly flat nodules. The skin of the forehead region was thickened and thrown into folds.

The chest and back were covered with numerous

brownish macules which were anesthetic to pin pricks.

The upper extremities revealed nodules about the forearms while the skin of the dorsum of the hands was scaling, cyanotic and atrophic.

The lower extremities revealed numerous ulcers and eczematoid areas. Shallow ulcers were present on the lower one third of the legs and on the dorsum of the toes of both feet. They were covered with a dark crust and were not tender to touch. There was an ichthyotic condition on the dorsum of both legs. The pulsations in the dorsalis pedis arteries could not be palpated.

Microscopic Examination—Smears from material in a nodule from the left forearm, stained with Ziehl-Neelson stain, showed many large, vacuolated cells which are the typical lepra cells or the cells of Virchow. The nuclear material is blue staining and is located in the center of the cell. In the vacuolated areas there are accumulations of red-staining, curved, thick bacilli with pointed ends. In some of the areas there is beading of the organisms. There are collections of bacilli in the vacuolated areas of the cells. Hyalinized debris is present in the degenerated cells.

Acid-fast stains of the tissue showed the typical lepra cells in the submucosa and corium and there was also invasion of the leukocytes by the organisms which is not usually found. The rest of the picture was about the same as the smear.



Fig. 1. Nodular leprosy in a St. Louisian. Notice thickening of supra-orbital ridges, nodules on cheeks and alopecia of outer third of eyebrows.

CLASSIFICATION

For many years, leprosy has been classified into cutaneous, nerve and visceral types but, with the development of immunologic tests, the following classification is suggested:

1. Lepromatous or nodular. These lesions are rich in bacilli. They are found in patients who give a negative lepromin reaction which indicates an absence of immunity, hence a poor prognosis.

2. Tuberculoid (pigmented or annular lesions). When the lesions are poor in bacilli, the lepromin test is positive; hence there is good resistance.

3. Nonspecific type. These are macular reddish-brown lesions signifying a transition stage. They may develop into the lepromatous type. The lepromin test is negative in about 50 per cent of these cases.



Fig. 2. Late nodular leprosy in a Filipino.

SYMPTOMATOLOGY

Very few cases are seen early in this country because of these factors: (1) insidious onset and (2) lack of suspicion of the disease on the part of the examining physician.

The frequency of the presenting symptoms or chief complaints as presented by the patient usually appear in the following order:

1. Blotches, spots or "ringworm," which may be hyperpigmented or hypopigmented areas, annular or flat erythematous macules.

2. Lumps or boils, which are the familiar nodules.

3. Numbness is a frequent complaint, associated with anesthetic areas which are caused by peripheral nerve involvement.

4. Ulcers, usually occurring on the fingers or toes.

5. Swelling of the skin, especially the hands and feet.

6. Muscle weakness (eyelids, face, hands and feet).

7. Contractures of the fingers.

8. Atrophy of fingers or toes.

GENERAL CHARACTERISTICS OF TYPICAL LESIONS OF LEPROSY

Nodules are moderately firm, red, shiny, pink or mahogony brown lesions from 0.1 to 1 cm. in diameter, single or multiple and located within the skin (intradermal). The favorite sites for this type of lesion include the ears, alae nasi, cheeks, forehead or, in fact, anywhere. They must be differentiated from xanthoma, neurofibromatosis and nodular syphilis.

Macules, also called leprids, may be any size, ap-



Fig. 3. Leprous ichthyosis of legs, very common in advanced cases.

pear anywhere, and may be defined sharply or have gradual fading borders. They may be hypopigmented or hyperpigmented, flat or ringworm-like. They must be differented from vitiligo, sarcoid, ringworm and tinea versicolor.

Localized infiltrations are not uncommon and usually involve the forehead, eyebrows, ear lobes and chin but may appear anywhere. When the face is involved they give it the characteristic leontine appearance. These lesions are persistent and are loaded with bacilli. The involved skin is thickened, glossy and corrugated with exaggerated skin folds, creases and furrows. Differential diagnosis must be made from senile atrophy, cellulitis, erysipelas and chronic seborrheic dermatitis.

Anesthesia takes a definite course. First, thermal sensation is lost, then light touch, pain and, finally, deep touch. Severe burns may be the first indication of a leprosy infection. The first area involved is usually that supplied by the ulnar nerves (little finger and adjacent one half of the ring finger). Then the anesthesia spreads centripetally. The macular type of lesion is usually anesthetic, the tuberculoid not invariably so. Differential diagnosis must be made from syringomyelia, nerve injuries and burns.

Ulcerations are caused by broken-down nodules, or may be trophic resulting from leprous neuritis. They often involve the fingers, plantar surface of the toes and the nose and may be associated with involvement of the underlying bone. Differential diagnosis must be chiefly from syphilis and diabetic gangrene.

Muscular atrophy or wasting of the muscles first involves the thenar and hypothenar eminences of the hands, then the interossei muscles of the hands and feet and, finally, the larger skeletal muscles.

Thickening of the nerves or nodulation may occur in any major or minor nerve. The ulnar nerve usually is involved behind the elbow where it passes between the olecranon and the medial condyle of the humerus and, frequently, for some distance above. The great auricular nerve is affected next in frequency and can often be demonstrated by having the patient turn the head sharply to one side. The third commonest nerve involved is the common peroneal nerve which is palpated around the head of the fibula. Differential diagnosis is from neuritis from any cause.

Paralysis is of one or both eyelids with a drooping of the lower lid or inability to close the eyes completely. In late cases, wrist or ankle drop is not infrequent.

Alopecia is characteristic. There is often a thinning of the lateral one half of the eyebrows with localized thickening of the underlying tissue. The scalp hair in contrast is not affected.

Loss of sweat production occurs in the anesthetic areas.

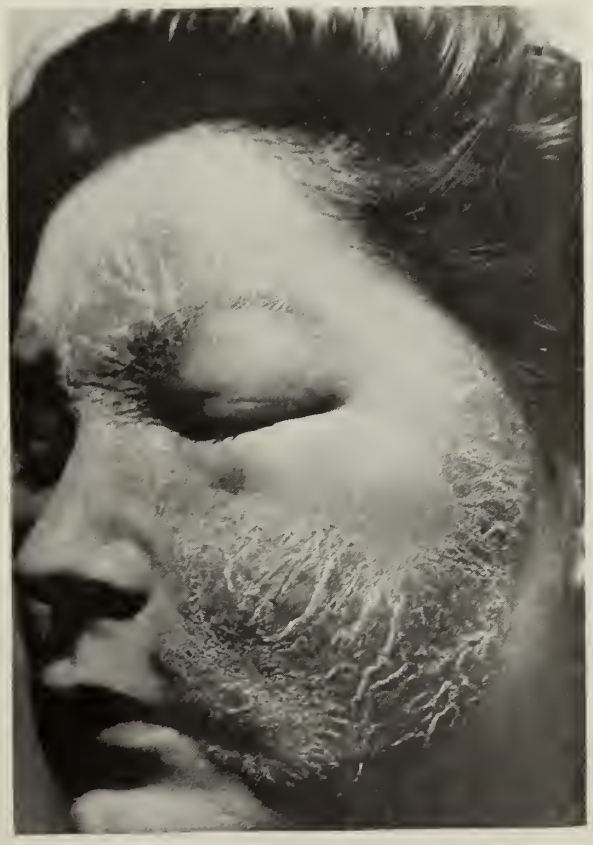


Fig. 4. Acute disseminated tuberculoid leprosy in a Mexican.

Contractures involve the fingers at first, later, the toes. The little finger is the first to be involved since the ulnar nerve supplies this digit. Severe cases of contractures give rise to the "clawhand."

Other deformities consist of absorption and necrosis of the bone, Charcot joints, dystrophies of the nails and enlargement of the male nipple.

DIAGNOSTIC PROCEDURES

The diagnosis is relatively simple when examining a case in an endemic area. The greatest difficulty occurs in arriving at a diagnosis in a Caucasian in a nonendemic area. While the clinical signs may point to a correct diagnosis, it is neither fair to the patient or the examiner unless the bacilli have been demonstrated by an expert bacteriologist. This finding plus the typical skin lesions and the presence of thermal anesthesia clinches the diagnosis. The following procedures are routine:

1. *Smears.* These may be taken from the nasal mucosa or preferably from the cut surface of a biopsy section. Nasal smears have decreased in importance in recent years. A positive nasal smear means nothing in the absence of clinical signs as acid-fast bacilli are not uncommon on the nasal mucous surfaces. Of course a negative nasal smear by itself would not rule out leprosy. The quickest method of finding the bacilli in a nodule is to make an incision under the nodule, scrape the cut surface and make the smear from the material. When examining macular lesions, the edge of an active lesion is used. Smears are made directly from the base of ulcers.



Fig. 5. Acute tuberculoid leprosy in a Mexican.

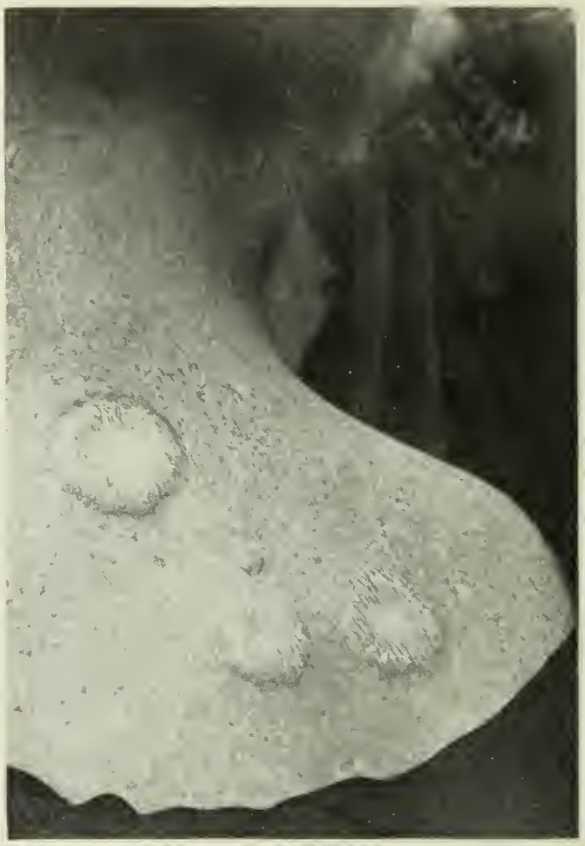


Fig. 6. Acute disseminated annular leprosy (tuberculoid type).

2. *Biopsy.* The pathology of a leprous nodule is characteristic but leprosy bacilli must be present in the lesions to establish a diagnosis. In the tuberculoid type, bacilli are sparse or absent and the histologic structure resembles sarcoid.

3. *Serology.* A positive Wassermann or Kahn test is found in about 90 per cent of the late cases of leprosy. This may represent a true reagin reaction, a cross infection with yaws or an associated syphilis.

4. *Lepromin (Mitsuda) reaction.* This is an intradermal test (similar to the tuberculin test). It is a test to determine the degree of immunity present but it is not a diagnostic test.[2] It is positive in the nodular types (poor resistance) and negative in the annular or tuberculoid type (good resistance). The positive papule appears within seven days and the test is read at the end of thirty days.

5. *Histamine test.* This is useful in the differentiation of anesthetic areas due to leprosy and central causes of peripheral neuritis.[3] A drop of 1:1000 histamine phosphate is injected intradermally into the anesthetic area and one drop in the contiguous

normal skin. A wheal but no erythema appears within 30 seconds in the anesthetic leprous skin. In nonleprous cases, whealing followed by erythema occurs.

Prognosis depends on the type of lesion and the degree of acquired immunity, early recognition and proper treatment. While spontaneous regression is rare, many cases have a minimum of permanent destructive and incapacitating sequelae. Lepers usually die from tuberculosis or associated renal disease.

Treatment is not specific. Medical therapy consists of Chaulmoogra oil and its esters which are now obtained from Australia. Thiamin chloride in large doses has proven useful in some of the nerve types. Promin and diasone also show promise. Physical therapy consists of supervised exercise, occupational therapy and fever treatments. A high calorie diet and the usual measures to increase the resistance are of course necessary.

Control of leprosy is a public health problem. All lepromatous (nodular) cases should be isolated. In this country they are sent to the Carville, Louisiana, Leprosarium, a U. S. Marine Hospital. That institution has parolled about 20 per cent of the cases as being noninfectious.

Precautions taken by the military authorities in the South Pacific include the following: (1) No soldier is permitted to visit or live in the home of a known leper. (2) No lepers are permitted to act as food handlers or personal attendants to the members of the armed forces.

CONCLUSIONS

An increase in the number of cases of leprosy in nonendemic areas in this country probably will be noted after the war in the Pacific. Because of the long incubation period most cases will escape detection at the ports of entry and at camps where soldiers are dismissed from the service. While it is hoped that the disease will never become a serious problem in this country, physicians should be acquainted with the signs and symptoms of the disease.

Hopkins and Faget[4] recently stated that the past experience of the Spanish American War has taught that with the lapse of years, when the long incubation period of leprosy has come to an end, at least a small number of those who served in countries where leprosy is prevalent will become its victims.

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Thanks are due Dr. Fernando Latapí, Mexico City, D. F., for the photographs of the Mexican patients.

OPERATIVE MANAGEMENT OF INGROWN TOENAIL

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In 1937, I surveyed the subject of ingrown toenail and formulated therefrom, and on the basis of my own clinical experience, methods of management which depended upon the severity of the case and other extenuating circumstances.[1] In bringing the subject up-to-date, no startling innovations have been forthcoming. Some reports have resurrected mechanical means of separating the nail from the nail wall[2, 3, 4] while others have redescribed old operative procedures with or without modification.[5, 6, 7, 8, 9, 10] Since the 1937 report, considerable additional clinical experience with the surgery of ingrown toenails has confirmed the proficiency of the methods previously described, while suggesting slight modifications in surgical technic and operative management. The purpose of this paper is to describe in considerable detail surgical technic and preoperative and postoperative management of these cases. The procedures described should assure excellent results.

The indications for operative intervention have been previously outlined.[1] Briefly, operation is advised on all cases exhibiting exuberant granulations at the involved site. In addition, most cases having drainage resulting from pressure of the nail border should have surgery. In this group of cases the aggregate of pain endured under conservative management is almost always more than under operative treatment; moreover, with conservative treatment, there is a great disposition to recurrence. From the economic point of view, also, the decision generally favors the more radical procedure because surgery effects a lasting cure and the patient is ambulatory except for the day of the operation, usually returning to work the following day. *These recommendations should be altered in cases with precarious pedal circulation,* a more conservative therapy being employed under such circumstances.

The object of the operation to be described is to remove the involved margin of nail and to prevent its regrowth. To prevent the regrowth of nail, it is necessary to destroy the matrix from which it grows. In order to accomplish this satisfactorily, the anatomic delineation of this important tissue should be kept in mind.

The Nail Matrix.—If one examines the normal nail, the white area, the lunula, is visible near the root, its distal rounded border being quite sharply outlined. This area is the matrix which, because of its lower vascularity than the nail bed distal to it, appears white through the transparent nail plate. The matrix initiates the growth of the nail plate, which is first deposited on the matrix and then grows out distally on to the nail bed to which

it becomes adherent. It should be emphasized that the nail bed distal to the matrix has no part in the nail growth other than determining the shape and contour as the nail grows upon it. Removal of the entire matrix prevents the growth of any of the nail. Removal, for example, of the lateral third of the matrix prevents the growth of the lateral third of the nail while not interfering with the growth of the medial two-thirds. Continuing the examination, removal of the nail plate exposes the matrix to immediate view. This is a shiny, dense epithelial tissue with a cartilage-like consistency, a plateau on a slightly higher level than the nail bed. Most of it lies in close proximity to the periosteum of the terminal phalanx. Its far border (the arc of the lunula) drops slightly and merges almost imperceptibly with the nail bed distally. It extends proximally the same distance as the nail plate itself, to a point half way between the distal edge of the matrix and the dorsal skin crease of the interphalangeal joint. Laterally, also, it extends exactly under the width of the nail plate. The most difficult portions of the matrix to expose are its two proximal corners. (Figure 1.)

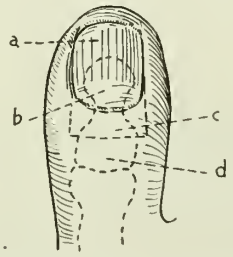


Fig. 1. The relationship between the nail, nail bed, matrix and terminal phalanx. a. nail, b. lunula, c. root of nail, d. phalanx. The tissue immediately underlying the nail is the nail bed. That portion of the nail bed underlying b and c is the matrix.

OPERATIVE PROCEDURE

Preoperative Treatment.—Since nearly all cases of ingrown toenail coming to surgery have infection of the nail wall, from three to five days occupied in reducing the inflammation is well spent. The following instruction list is given:

1. Soak the foot in warm water (body temperature or slightly above) twice daily for one hour. Following this, dry the foot thoroughly and sprinkle cornstarch or talcum powder liberally.
2. If drainage is present apply a clean small bandage after each soaking.
3. Change stockings daily. White cotton hose are preferable.
4. Wear cut-out shoe or loose slipper when walking.
5. Bring along an old shoe which can be cut for use after the operation.

The day before the operation the foot should be reexamined. Only frank suppuration should cause further postponement of the operation. A moderate degree of inflammation has little, if any, adverse effect on the healing. No premedication is necessary.

The antiseptic of choice is applied to cover the entire foot. Special attention should be directed to cleansing the interdigital areas and the sulci around and under the free border of the nails. The foot is draped.

Satisfactory visualization of the essential structures can be obtained only by rendering the field bloodless with a tourniquet. An elastic band is placed around the base of the toe, pulled up snugly and secured with a hemostat. It is applied just before the injection of the local anesthetic and serves also to prevent diffusion of the anesthetic agent.

Anesthesia.—Local anesthesia should be employed in all cases, except for very apprehensive adults and uncooperative children. Nerve block anesthesia keeps the agent away from the highly contaminated or infected field and, accordingly, is preferable to infiltration. Successful anesthesia depends upon a knowledge of the course of the digital nerves. The great toe has four digital nerves, two dorsal and two plantar. The dorsal nerves, sensory terminal branches of the superficial peroneal nerve, supply the skin on the dorsum of the toe except for the nail and its immediate vicinity. The plantar digital nerves, sensory terminal branches of the medial plantar nerve, innervate the plantar surface of the toe and in the terminal phalanx send twigs dorsally to supply the nail and its surroundings. Each nerve innervates approximately half of its respective surface, but there is some overlapping of nerve endings so that it is necessary to inject both sides of the toe to obtain adequate anesthesia for a unilateral operation. By the same token, blocking the plantar digital nerves alone is not enough to anesthetize the operative site. It is impractical, if not impossible, to block the plantar nerves separately from the dorsal nerves since at the base of the toe they are in close proximity to each other and to the bone. The injection is made through a ¾ inch

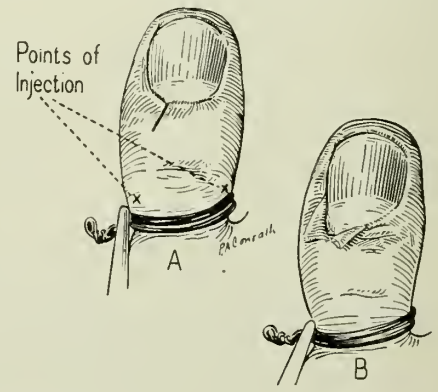


Fig. 2. A. The incision. B. Dissection of flaps to expose the root of the nail.

hypodermic needle, using 1 per cent or 2 per cent procain hydrochloride, *without epinephrine*. The needle is thrust through the skin on the side of the toe just distal to the tourniquet (fig. 2A), an attempt being made to strike the bone with one sudden movement. The needle is directed somewhat dorsally, since the bone and nerves lie nearer to that surface than to the plantar surface. It is then withdrawn about one eighth of an inch and from 2 to 3 ccs. of the solution injected. The direction of the needle is then changed to inject from 0.5 to 1 cc. each plantarward and dorsally. A similar procedure on the other side of the toe completes the anesthesia and the operation can be started in from five to ten minutes.

Steps of the Operation.—1. An incision is made starting at the margin of the proximal nail wall about one third of the distance across the transverse diameter of the nail. The incision should extend on the diagonal laterally and should be deep enough to strike throughout its length the root of the nail, and long enough (from ⅜ to ½ inch) to permit exposure of its proximal border (fig. 2A).

2. Medial and lateral flaps are raised to expose the underlying third of the nail root. The medial flap is usually short while the lateral flap is larger in order to uncover the lateral nail border (fig. 2B).

3. A small flat spatula, e.g., a Ballenger-Hajek nasal elevator (fig. 3A) is inserted one third the

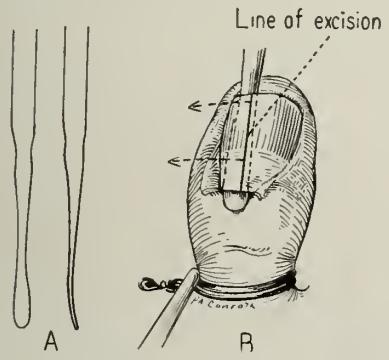


Fig. 3. A. Ballenger-Hajek nasal elevator (actual size). B. Its use in elevating the nail from the nail bed.

distance along the free border of the nail from the involved edge, between the nail plate and the nail bed. Hugging the under surface of the nail plate, it is thrust straight proximally until it emerges in the incision from beneath the root of the nail. The spatula is then worked toward the affected nail edge, lifting that third of the nail completely from its bed (fig. 3B).

4. With a small stout straight scissors the freed nail is excised along a straight line (fig. 3B), the direction of which can be determined exactly by paralleling the natural longitudinal growth ridges of the nail. This exposes the underlying nail bed and, proximally, the matrix (fig. 4A).

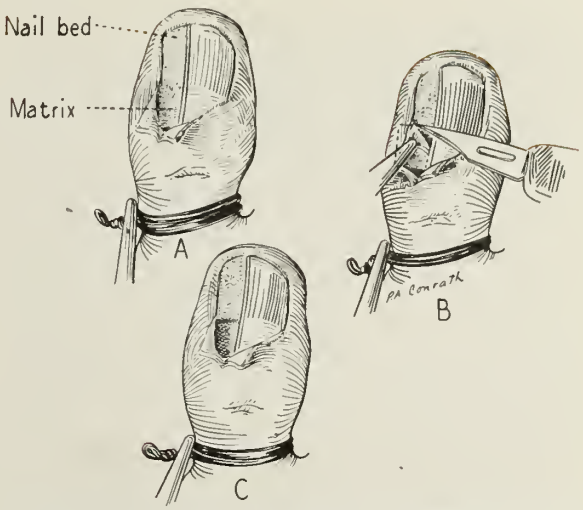


Fig. 4. A. Exposure of the nail bed and the matrix after removing strip of nail. B. Excision of the exposed matrix. C. The matrix has been excised. The flaps will fall back into position.

5. This is the most important step of the operation. Using a sharp scalpel, the blade of which is small enough to work under the flaps, the exposed matrix is completely removed, preferably in one block. This is done by incising through the matrix first along the edge of the cut nail, then along its distal border (edge of lunula) to the depth of the periosteum of the distal phalanx. The corner which is formed by these two incisions is raised with a small toothed forceps and the entire thickness of the matrix shaved off on the plane of the periosteum (fig. 4B). By starting the removal of the matrix at this corner, which overlies the bone, one can judge the thickness of the matrix better than on the lateral border where it is not in contact with the bone (fig. 1). Particular care should be taken in the furthermost corner, where the exposure is often poor, else an island of matrix may be left to set up the regrowth of a spicule of nail (an embarrassing and annoying result, fortunately, however, compatible with a cure).

6. Occasionally it is advisable to remove some of the granulations, if present, when they interfere with the self-closure of the wound. More often this is unnecessary because removal of the offending edge of the nail quickly permits the nail wall to revert to normal. No drainage is instituted and no sutures are applied. The flaps will appose themselves automatically, or with the aid of the dressing.

Dressing.—The terminal phalanx is encircled snugly in two or three layers of grease gauze and a few small pieces of plain gauze. Several turns of a two inch roller bandage are applied. The tourniquet is then cut, starting considerable bleeding, but this is controlled by pressure of the subsequent turns of the bandage, which can be drawn tightly around the terminal phalanx where there is practically no danger of interfering with the cir-

culation. The other toes are left unbandaged and it is seldom necessary to continue the bandage onto the remainder of the foot. The clean sock is applied and the cut-out shoe further opened to make room for the ample dressing.

Postoperative Care.—The following postoperative instructions are given:

1. Return home immediately after operation. It takes an hour for the anesthesia to wear off and the patient should be home when it does.

2. Occasionally some blood appears on the surface. This will soon dry on the dressing. One or two small pieces of gauze placed over the area and secured with adhesive tape may be applied to absorb this blood.

3. Some pain is always present but considerable relief may be obtained with the following measures: (a) Keep foot elevated at same level as hips. (b) Apply dry warmth (electric pad, electric light bake or hot water bag) if foot feels cold or the temperature of the room is low. Test the temperature of the appliance so as not to cause a burn. (c) If these measures do not give relief, take one or two 5 grain aspirin tablets every four hours.

4. Do not bear weight on the foot the day of the operation.

5. The day after the operation, walking with the cut-out shoe is allowed. Thereafter, walking may be increased depending upon how the foot feels.

The blood-encrusted dressings are removed on the second postoperative day and clean, less bulky dressings reapplied. Thereafter dressings are done every two to five days depending upon the amount of drainage and discomfort. After a week, a bland ointment, sulfa powder or dry dressing may be substituted. Soon the patient himself can apply a ready-made miniature dressing (1 square inch gauze surface) after his usual bath. His regular shoe can be worn, frequently, by the tenth day.

Operations on Both Sides of the Same Toe.—When both sides of the same toe are involved, they are both operated on at the same time, even if only one side is affected sufficiently to require surgical intervention. In this instance, the two medial flaps combine to form one central flap. The procedure is more easily accomplished if the entire nail plate is removed, the excision of the matrix being confined to the two outside thirds. The end result is a central strip of nail from one third to one half of the original width.

Operations on Both Great Toes.—When both toes are affected, they too can be operated on at the same time. If one toe requires only conservative therapy, the operation should be confined only to that toe with the more advanced lesion.

SUMMARY

The surgical management of ingrown toenail is described in considerable detail. The operative procedure emphasizes the excision of the nail matrix to prevent regrowth of the nail on the affected side.

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CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 65

PRESENTATION OF CASE

L. T. F., a 30 year old former CCC worker entered Barnes Hospital for the first time on March 29 and was discharged April 6, 1939. The significant features of this admission are included in the record of his second hospital admission on the surgical service which dated from December 1 to December 31, 1944.

Chief Complaint.—Chronic cough.

Family History.—The patient's father, brother and uncle died from tuberculosis and another brother had it in a quiescent form.

Past History.—The patient had no significant disease previous to his present illness other than asthma in childhood. He had been a laborer in a CCC unit.

Present Illness.—About 1933 the patient developed a productive cough. Shortly after that his father died from tuberculosis and the patient received a physical examination. Roentgenograms at that time revealed a left apical tuberculous lesion with a cavity about the size of a nickel. He felt quite well at the time and refused medical advice. He continued to work as a laborer until 1938 when he suddenly coughed up 1 ounce or more of blood. He then was hospitalized in a sanitarium where he remained for about nine months. During this time he was treated with pneumothorax. In March 1939 he developed pain and tenderness about the rectum and was sent to Barnes Hospital. During this first admission a diagnosis of ischiorectal abscess on the right side was made and an operation was performed. About 100 cc. of thick pus was evacuated. A portion of the lining of the cavity was removed for biopsy which revealed only acute inflammation. The patient made an uneventful re-

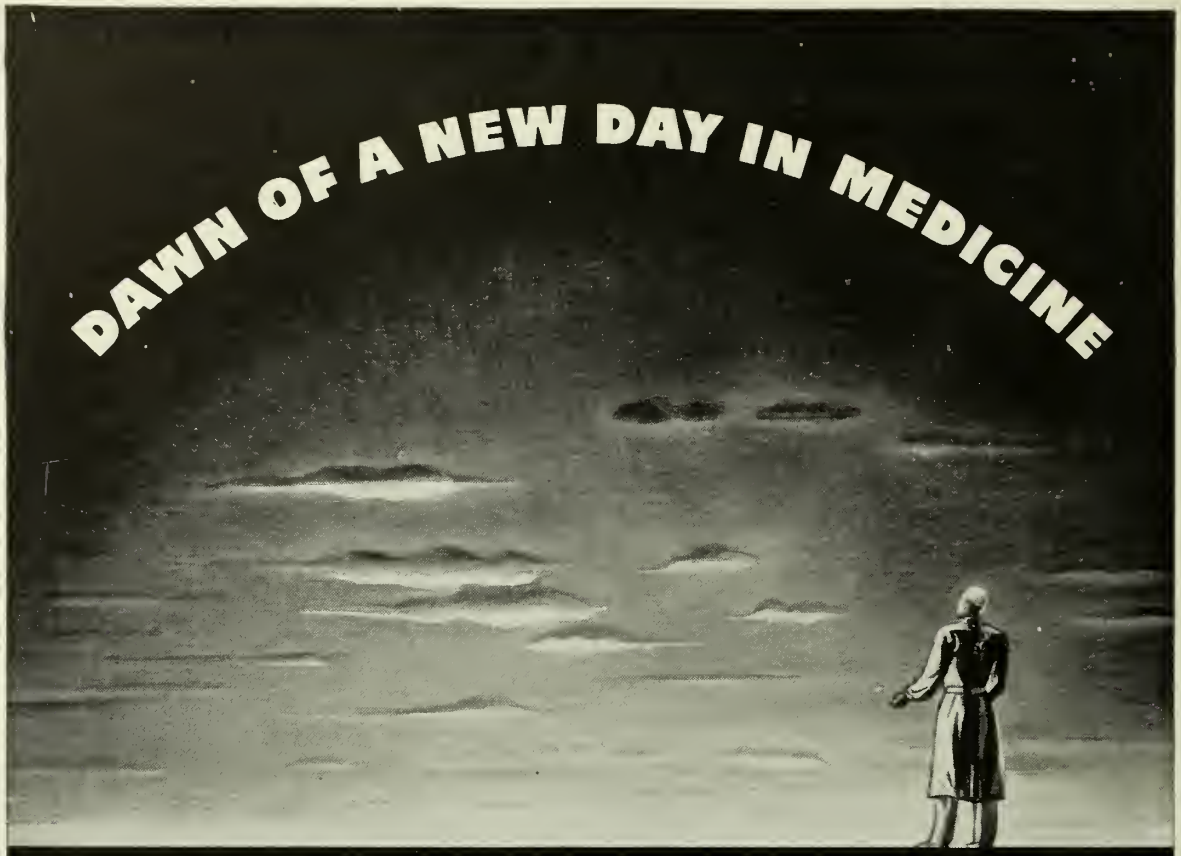
covery. Shortly after this he left the sanitarium and continued to receive pneumothorax treatment. He was informed that throughout his residence he had had fluid in the left pleural cavity. After discharge he felt in fairly good health until April 1940 when he suddenly had a second hemoptysis. He reentered the sanitarium and remained there until his admission to Barnes Hospital. During these four years he had occasional hemoptyses, but, no more than a few ounces on any occasion. His general health appeared to improve in that he gained some twenty pounds in weight. He was sent to Barnes Hospital for surgical treatment of his lungs.

During the last few years before entrance to Barnes Hospital there were some systemic manifestations. There was a succession of red, firm, indurated nodular swellings of the skin over the legs which would last about two weeks and leave pigmented areas. These usually occurred in the winter and never appeared above the knee. Four years previous to admission to Barnes Hospital, the patient began to suffer upper abdominal pain relieved by belching. He also had a burning sensation in the upper abdomen after his noon and evening meals, although the time interval was not stated. This discomfort frequently would awaken him at night. It was relieved by soda mint tablets. There was no diarrhea. These symptoms persisted.

Physical Examination.—Temperature 38.2 C., pulse 108, respiration 24, blood pressure 130/80. The patient appeared well developed and in no apparent distress. He did not look ill. His breathing was slightly labored. The skin was of good color. Over the anterior aspect of both lower limbs there were pigmented areas which measured from 0.5 to 2 cm. in diameter. The eyes showed no abnormalities and the upper respiratory tract appeared normal throughout. There was dulness to percussion over the left upper lobe. The breath sounds were described as bronchovesicular over this area. Flatness and suppression of breath sounds were present over the left lower chest. Percussion of the heart revealed the mediastinum to be shifted to the left. The rhythm was regular and no thrills or murmurs were elicited. No organs or masses were palpable in the abdomen. The genitalia were normal. The previous ischiorectal abscess had healed. There was no clubbing of fingers.

Laboratory Findings.—Blood count: red cells 5,600,000, hemoglobin 12 gms., differential count: eosinophils 1 per cent, juvenile forms 2 per stab forms 10 per cent, segmented forms 54 per cent, lymphocytes 15 per cent, monocytes 12 per cent. Urinalysis was entirely normal. Blood Kahn test was negative. Blood sugar was 84 mg. per cent; nonprotein nitrogen 26 mgs. per cent. Sputum showed no acid-fast bacilli.

Course in Hospital.—On inserting a needle at the fourth left interspace in the axillary line, 100 cc. of greenish, thick pus were aspirated. This revealed no acid-fast or other organisms. It was injected into a guinea pig in which tuberculous lesions were observed and acid-fast organisms recovered three and one half weeks later. On December 5 a bronchoscopy was performed. The right side showed nothing remarkable; on the left the bronchial architecture was distorted markedly, the left main stem bronchus being pulled upward to such an angle that the left upper lobe bronchus and the two more lateral lower lobe bronchi could not be seen. The medial branch of the lower lobe was stenosed. There was some secretion in all branches. On December 9 a thoracoplasty was performed and the first, second and third ribs on the left were resected. Penicillin therapy was begun. For about one week following operation the patient complained of nausea and he frequently vomited, sometimes as much as 300 cc. During this week his temperature rose with irregular spikes to about 39 degrees. His pulse remained elevated to about 120 and respirations ranged between 24 and 32. On December 12 albumin 3 plus with some casts appeared in the urine. On this day the red blood cells were 3,790,000, hemoglobin 8 gms. The white cells were 13,250 and the differential count revealed 24 stab forms, 54 segmented forms, 15 lymphocytes and 3 monocytes. Marked albuminuria continued thereafter. From December 16 to 23 the patient appeared improved. His temperature was about normal and, other than some cough and shortness of breath, no significant findings were recorded. He then began to vomit again, lost his appetite and the urinary output diminished to but a few hundred cubic centimeters a day. On December 27 he became increasingly drowsy. Medical consultation was secured and physical examination then revealed fine rales over the right lung anteriorly and posteriorly. A gallop rhythm, a soft basal systolic murmur and a very loud second pulmonic sound were heard in the heart. A large mass was discovered in the abdomen which moved with inspiration and extended almost to the umbilical level. It was slightly tender and the edge was somewhat rounded. There was an irregularity to this mass in the epigastrium. The spleen was questionably palpable and the right testicle was smaller than the left. Laboratory findings then revealed a progressing anemia despite transfusion a few days previously. The nonprotroein nitrogen was 113 mgs. per cent. The blood proteins were 6.7 gms. per cent with albumin 4.1, globulin 2,6 CO_2 combining power was 45.7 mgs. per cent. The blood chlorides were 321 mgs. per cent. Cephalin flocculation test was 2 plus. A gastric analysis revealed 300 cc. of "coffee ground" watery material in which there was no free acid. The specific gravity of this fluid was 1.018 and the guaiac test was 3 plus. A Congo red test was done and 30 per cent of the dye was recovered after one hour. On December 30 the patient was comatose, the respira-



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tions were gasping in type and there were occasional twitchings of the left arm. Intravenous glucose in saline was administered without effect. The patient expired quietly the following day.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: There are two aspects of this case—tuberculosis and the disease responsible for the terminal signs and symptoms. We may discuss them in order. In 1933 this patient had occasion to have his chest examined because his father died of tuberculosis. It is stated that he had a lesion in his left apex and a cavity the size of a nickel. He did nothing about this lesion and worked as a laborer for five years until he had a small hemoptysis. Dr. Goldman, is it common to have a cavity in the lung, feel well, except for a cough, and be able to work hard for a long period of time?

DR. ALFRED GOLDMAN: That would not be unusual.

DR. ALEXANDER: What is the difference between this patient, who had a cavity and continued working for five years, and the patient who has a minimal apical lesion, night sweats and fever? Why does one get sick and one does not?

DR. GOLDMAN: This man unquestionably had the fibrotic or productive type of tuberculosis, and the individual who takes sick suddenly has the so-called exudative type—an inflammatory type which progresses rapidly.

DR. ALEXANDER: Dr. Harford, do you have any comment to make about immunity in tuberculosis? Why do the patients with tuberculosis have symptoms? What makes them sick? The tubercle bacilli never leave the lung so why is the patient ill?

DR. CARL HARFORD: One of the things that makes a patient sick is the absorption of break-down products from the tuberculous focus.

DR. ALEXANDER: Dr. Wood, would you subscribe to the conventional idea that tuberculin is released and that the individuals and the tissues that are sensitive to tuberculin react violently?

DR. W. BARRY WOOD: Yes, I would in certain instances. There is a condition called epituberculosis which is the best example of this type of reaction. Apparently tuberculin is released and there is a tremendous edema of the lung which later subsides.

DR. ALEXANDER: Dr. Goldman, do you believe that it is only a break-down of the lung or is it a release of tuberculin into the tissues?

DR. GOLDMAN: I think it is a combination.

DR. ALEXANDER: This patient had an ischiorectal abscess. Dr. Goldman, are most examples of ischiorectal abscess tuberculosis?

DR. GOLDMAN: About 7 per cent of patients who have tuberculosis have fistulae, or ischiorectal abscesses. Rectal fistulae with abscess formation are most often due to some other cause than tuberculosis. Up to 14 per cent of ischiorectal abscesses have been reported as being due to tuberculosis.

DR. ALEXANDER: How is such an abscess developed? Is there a penetration of the rectal wall?

DR. GOLDMAN: There are several theories. I think the most likely mechanism is penetration—infection of a rectal crypt, fistula formation and abscess formation. A third explanation in some cases is a systemic infection—a hematogenous infection.

DR. HAROLD SCHEFF: The original lesion is usually not tuberculosis. The tubercle bacilli enter the lesion through a crypt and secondary infection takes place.

DR. ALEXANDER: This patient also showed lesions on his lower extremities which had all the characters of erythema nodosum. Dr. Weiss, would you associate that with tuberculosis?

DR. RICHARD WEISS: Certain cases of erythema nodosum are said to be tuberculosis in origin, that is, due to the tubercle bacilli.

DR. ALEXANDER: In a case of erythema nodosum, what would come to your mind as possible underlying diseases?

DR. WEISS: The first possibility is the average, ordinary type of erythema nodosum which seems to be a primary infectious disease in which the individual develops nodules on the legs chiefly and sometimes on other areas of the body. They last for from two to six weeks and with rest and salicylates disappear. Other types of erythema nodosum are associated with rheumatic fever and tuberculosis. While the microscopic appearance is not typically tuberculosis in some of them, by guinea pig inoculation, the tubercle bacillus may be recovered. Erythema nodosum in tuberculosis has a tendency to last longer than in the acute infectious type or even the rheumatic type. Erythema nodosum also occurs in syphilis.

DR. ALEXANDER: For four years this patient had digestive disturbances. Pain after eating was relieved by soda. From the history, do you suspect that this man had a duodenal ulcer, Dr. Scheff?

DR. SCHEFF: The symptoms are suggestive of a duodenal ulcer but digestive disturbances are common in pulmonary tuberculosis.

DR. ALEXANDER: The patient had had numerous pneumothorax treatments. It is stated that this could not be pursued because of adhesions. Dr. Goldman, is it possible to prevent adhesions if pneumothorax is properly administered?

DR. GOLDMAN: In only about 24 per cent of the patients treated by this method is pneumothorax really successful. There are some patients who have adhesions before pneumothorax and some continue to develop new adhesions.

DR. ALEXANDER: How common is fluid in the pleural cavity after pneumothorax?

DR. GOLDMAN: A sterile fluid is quite common with induced pneumothorax—it is seen in almost every case. In most instances it disappears.

DR. ALEXANDER: Upon admission to the hospital a needle was inserted into the left axilla of this patient and 100 cc. of thick green material were removed. What would you consider that to be?

DR. GOLDMAN: A tuberculosis empyema, which is not an uncommon complication in pneumothorax.

DR. ALEXANDER: Dr. Poppy, what about the success of thoracoplasty?

DR. CARL POPPY: We intended to remove about ten ribs. In view of the tuberculosis empyema it was necessary to do a complete thoracoplasty to get a satisfactory collapse of both the diseased lung tissue and of the empyema below. This is a well recognized procedure in which the conversion of the sputum to negative averages about 80 per cent. In other words, about 80 per cent of the people who have thoracoplasty have a satisfactory result with a relief of symptoms.

DR. ALEXANDER: If a pneumothorax cannot be done and the lesion is limited to the apex, is an apical thoracoplasty performed?

DR. POPPY: A limited thoracoplasty may be done by cutting from five to seven ribs. It is necessary to remove that many to permit the scapula to fall down. If sufficient ribs are not removed there is an unsatisfactory collapse and the scapula catches on the last rib.

DR. ALEXANDER: What has happened to the method of extrapleural compression?

DR. POPPY: That has been largely abandoned due to the number of severe complications involved.

DR. EDWARD H. REINHARD: Does not the presence of a tuberculous bronchiectasis make it unlikely that a satisfactory result will be obtained by thoracoplasty?

DR. POPPY: The results that follow thoracoplasty in cases of tuberculous bronchiectasis are not quite as satisfactory as they are in other types of tuberculosis in which there is a soft-walled cavity. However, there is a conversion of the sputum from the positive to

negative in approximately 60 per cent of the cases with tuberculous bronchiectasis.

Dr. Edward H. Reinhard: This man had a bronchial stenosis too, did he not?

Dr. Poppy: He was not considered to have a true bronchial stenosis. There was free escape of the pus and there was no absolute constriction of the bronchial trees although there was considerable distortion. If he had had bronchial stenosis we should have had to consider some other type of therapy.

Dr. Harford: It is usually considered dangerous to give patients with tuberculosis iodine but this patient had iodized oil put in his bronchus. Is there any danger in that?

Dr. Poppy: It has been considered that there is some danger in using methiodol in the presence of tuberculosis. Dr. Graham feels that the advantages outweigh the disadvantages, however. The small number of reactions following methiodol is almost negligible.

Dr. Alexander: After the operation the patient developed fever and frequent vomiting and eventually vomited "coffee grounds" material. Dr. Scheff, what are your reactions to this?

Dr. Scheff: My interpretation would be that this patient probably had a peptic ulcer. Patients with peptic ulcer may have relapses in association with any other infection. I do not believe that it was serious enough to cause his death.

Dr. Alexander: Do you believe that there are suggestions here of a high intestinal obstruction? There was persistent vomiting, a history of an ulcer and a high nonprotein nitrogen.

Dr. Scheff: The amount of material obtained from the stomach—300 cc. and at another time just over 100 cc.—is suggestive of pyloric obstruction that is mild but not complete. If the nausea and vomiting had also been associated with intestinal absorption of blood the nonprotein nitrogen would not have risen as high as is recorded for this patient. I think this is a renal rather than a prerenal azotemia.

Dr. Alexander: Dr. Wood, do you believe that this was essentially a renal lesion?

Dr. Wood: When I first saw the patient I did not know whether the azotemia was renal or prerenal. It was difficult to determine because this man had a history suggestive of ulcer, and he was vomiting a great deal at that time. The blood chemistry answers that question for us—the chlorides were normal and the CO2 was a little low. This is not what is expected in prerenal azotemia. The CO2 would be high and the chlorides low. We felt that this was a renal azotemia.

Dr. Alexander: He did not have hypertension. What was the nature of the renal disease?

Dr. Wood: I thought it was probably amyloid disease. A mass was felt in the abdomen and I thought I could feel the spleen. The clinical picture of azotemia without hypertension is compatible with amyloid disease.

Dr. Alexander: How many cases of tuberculosis develop amyloid disease or vice versa?

Dr. Wood: I found one series quoted by Fishberg, in which forty-one out of fifty cases of amyloid disease were associated with tuberculosis. That is quite high. I think the ordinary figures run lower than that.

Dr. Alexander: The albuminuria is in keeping with amyloidosis. What about casts?

Dr. Wood: There are usually some casts.

Dr. Alexander: The mass in the abdomen which was thought to be the liver was described as having a rounded edge. Is that the type of liver usually observed in amyloid disease?

Dr. Wood: The edge is usually sharp in amyloid disease. I would not have described the liver edge as rounded—I thought it was rather definite. I could not feel the mass described by other observers over the body of the liver.

Dr. Alexander: Clinically, an amyloid liver is a large soft smooth liver with a knife-like edge. Dr. Reinhard, what about the Congo red test?

Dr. Reinhard: The Congo red test is not too reliable. If the amount of dye retained in the tissue of the body is over 90 per cent, that is good evidence for amyloidosis. However, if the percentage of dye retained is less than 90 per cent, one has to be cautious of making a diagnosis of amyloidosis. This patient developed renal insufficiency in a few weeks. Is that not unusually rapid for amyloidosis?

Dr. Harford: That is fast but there have been examples in which amyloidosis has come on within a month and a half.

Dr. Wood: Experimental amyloidosis can be produced in two or three weeks. In connection with the absence of albuminuria on admission, it is characteristic for albuminuria to disappear on occasions in amyloid disease, so the fact that the first urine examinations were normal is quite compatible with amyloid disease.

Dr. Alexander: The laboratory findings on admission were about normal. Is it your feeling that this patient had seriously compromised kidneys and the operation put a strain on them?

Dr. Wood: There was only one suggestive abnormality on admission. The nonprotein nitrogen was 26 mg. per cent. This is certainly at the upper limit of normal.

Dr. Harold Bulger: In our laboratory, 25 is the upper limit of normal acid; most normals are between 15 and 20.

Dr. Alexander: Either this man, with his years of tuberculosis, had significant amyloid disease and could not withstand an operation, or, he had good kidneys on admission to the hospital and developed acute amyloidosis.

Dr. Wood: I think it more likely that the man had amyloid disease which was not detected.

Dr. Goldman: I also think this patient had amyloidosis, but something should be said about tuberculosis of the kidney. A large percentage of patients with active tuberculosis develop tuberculosis of the kidney. This patient had no symptoms referable to the bladder, which is often the site of the initial symptoms. There was no mention made of pus and blood in the urine.

Dr. Wood: We should say one more thing about renal insufficiency. Renal insufficiency is a late manifestation of amyloidosis and the fact that the patient did develop renal insufficiency is good evidence that the amyloidosis had been present a long time. On the other hand, many patients never develop renal insufficiency with amyloid disease.

Dr. Robert Moore: Dr. Alexander, a diagnosis made by two students, namely, carcinoma of the stomach, may be of some interest in the discussion.

Dr. Alexander: This patient certainly had pronounced symptoms referable to the upper gastrointestinal tract. There was blood in the vomitus. If he had carcinoma of the stomach it was incidental to the tuberculosis and to the renal disease. Dr. Scheff, do you believe that he may have had carcinoma of the stomach?

Dr. Scheff: I feel that he had carcinoma primarily rather than ulcer if he had anything.

Dr. Goldman: It should be mentioned that the attempt to control the tuberculosis in this case was the patient's only chance of recovery. In cases of amyloidosis in association with tuberculosis the only patients to recover have been those in whom the tuberculosis has been controlled.

Dr. Alexander: Patients with amyloid disease may recover symptomatically but how does the amyloidosis actually heal?

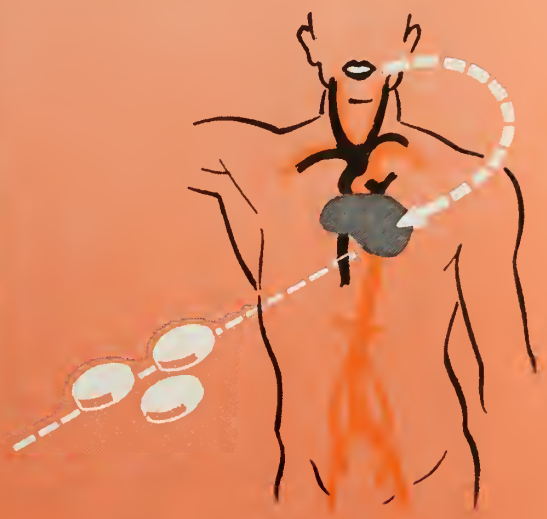
Dr. Wood: It may disappear leaving only minimal scarring.

Student: Would you care to discuss the cardiac

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status? The patient had a gallop rhythm, rales in the lungs and a large liver.

DR. ALEXANDER: That is an excellent question. Quite apart from what has already been discussed, his symptoms make a good case for cardiac failure. The liver suddenly enlarged, albuminuria developed suddenly, and he had a gallop rhythm. It would be difficult to fit in all the other symptoms we have discussed in terms of cardiac failure, but your thought that he might have had cardiac failure that contributed somewhat to the enlarged liver is a point well taken.

ANATOMIC DIAGNOSIS

Chronic pulmonary tuberculosis of the left lung with fibrosis of the upper and lower lobes of the left lung.

Fibrous obliteration of the left pleural space with fibrous thickening of the pleura, advanced (history of pneumothorax, six years, and of thoracoplasty for collapse of the lung, three weeks).

Fibrocaseous nodules in left lung.

Partially healed wound of the wall of the left chest.

Fibrous, calcified and fibrocaseous bronchogenic tubercles of all lobes of the lungs.

Hypertrophy of the right ventricle of the heart.

Amyloid infiltration of the liver, spleen, adrenals and kidneys with scarring of the kidneys.

Serofibrinous pericarditis (250 cc.).

Hypertrophy and dilation of the heart, 450 grams.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: The lesions of this patient may be considered in two categories; first, the manifest tuberculosis and, second, the terminal lesions bringing about renal insufficiency.

In sections taken from the left lung we did not find any actual cavities or excavations of pulmonary tissue. We agree with the radiologic diagnosis of a type of bronchiectasis with large cavities lined with bronchial mucosa. Throughout the fibrotic pulmonary tissue there were caseous nodules with caseous material in the center surrounded by a dense zone of connective tissue with little evidence of activity. The lesions had been collapsed and caused to undergo a certain degree of healing. Further evidence of the efficacy of the collapse is seen in the atelectasis of the pulmonary tissue, thickening of the alveolar walls and thickening of the interlobular septa by connective tissue. There was a tuberculous bronchitis which was probably responsible for the positive sputa.

The amyloidosis of the kidney brought about destructive changes. Many glomeruli were obliterated and there were a reduction in the number of tubules, a change in the cellular type of the tubular epithelium and a heavy infiltration with lymphocytes. There was a thickening of the arterioles in the kidney independent of the amyloid. There were hyaline droplets within the renal epithelium as evidence of the albuminuria which the patient had at the time of death. The presence of hyaline casts in the collecting tubules is again associated with the albuminuria. There were no tuberculous lesions in the kidney, but a slight to moderate degree of acute pyelonephritis was seen. A few tubules were filled with polymorphonuclear leukocytes. There is a possibility that the patient had a certain degree of amyloidosis and then developed an acute pyelonephritis which may have been just enough to swing the balance over toward renal insufficiency. The deposit of amyloid in the spleen was not excessive. It was limited to the malpighian bodies and did not even bring about a complete destruction of them. There were extensive amyloid deposits in the sinusoids of the liver, with compression atrophy of the cords of hepatic cells. The adrenal cortex was replaced by amyloid with complete atrophy and disappearance of the cortical cells with the exception of a few on the surface.

In a study of 135 cases of amyloid disease in association with tuberculosis, Pearlman found that the type of lesion showed no significant reaction to amyloidosis except in tuberculosis empyema and in tuberculosis of bone. Those two tuberculosis lesions are more frequently associated with amyloid disease than are other tuberculosis processes. Dr. Pearlman's observations of patients with amyloidosis showed hypertension in a small number (2 per cent), edema in about half, albuminuria in almost all, and azotemia in from one fourth to one third. Prognosis is at the best poor—one half are dead in six months and 80 per cent in twelve months. About one third die of renal insufficiency. Many of those deaths are from tuberculosis rather than from amyloid disease itself. A summary of Dr. Pearlman's observations and correlations shows that there is some related disease, enlargement of the liver and spleen, normal blood pressure in 98 per cent, normal eyegrounds, peripheral edema in half; proteinuria cylindruria or hematuria in some combination in 97 per cent, no secondary anemia, normal venous pressure and a significant Congo red test. Dr. Pearlman feels that when these nine things are together in combination there is little else that it can be except amyloid disease.

No significant lesion of the gastrointestinal tract was found to explain any of the patient's symptoms. They must have been related to the chronic pulmonary tuberculosis and perhaps to the renal insufficiency.

There are anatomic observations on amyloidosis in man showing that the deposits can disappear and leave a relatively normal organ. There is therefore good pathologic support for what Dr. Goldman has pointed out—that every effort should be made to control the related disease in the hope that the amyloid will cease deposition, that some of it will be resorbed and that the insufficiency of the viscera will be improved.

ELIMINATION DIETS AND THE PATIENT'S ALLERGIES. A Handbook of Allergy. By Albert H. Rowe, M.D., Lecturer in Medicine, University of California Medical School, San Francisco, Calif.; Consultant in Allergic Diseases, Alameda County Hospital, Oakland, California. Second Edition, Thoroughly Revised. Philadelphia: Lea & Febiger. 1944. Price $3.50.

The author states in his preface that "the purpose of this new edition continues to be twofold; first to emphasize the importance of food allergy in the production of many allergic manifestations along with the value of the writer's revised elimination diets for the study of possible food allergy and second, to discuss the other causes of clinical allergy with present day methods for their diagnosis and control."

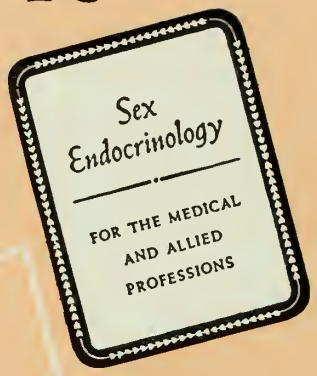
Rowe emphasizes the danger of reliance on scratch and intradermal tests for testing allergy. The leukopenic index, in common with other investigators, he regards as fraught with too many possible and technical errors for routine use. Histaminase, he regards as of questionable value, a view shared by many dermatologists.

The reviewer does not agree with two statements Rowe makes: That halitosis and a coated tongue are due to food allergy (page 120) and that senile pruritus may be due to allergy (page 110).

The formula for Coca-Cola is given on page 22; there are eleven ingredients present in this popular soft drink.

The elimination diets are complete and the indications are listed for ready reference. Menus and recipes also are included with no details omitted. Rowe's book on "Elimination Diets" is a classic and should be in the library of every physician who is interested in allergic conditions.

WITH OUR COMPLIMENTS



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We are sending you this eighty-eight page book on SEX ENDOCRINOLOGY which summarizes up-to-date information on the action and uses of sex hormones. The book is attractively bound, completely indexed, and profusely illustrated. We feel sure it will prove a useful addition to your reference library.

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THE JOURNAL
of the
Missouri State Medical Association

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APRIL, 1945

EDITORIALS

MISSOURI MEDICAL SERVICE

The Board of Trustees of Missouri Medical Service at a meeting on March 4 approved the Membership Certificate and the Schedule of Benefits. These will be in printed form by approximately the same time that THE JOURNAL reaches members. Therefore, since space in THE JOURNAL is at a premium because of the government restriction on paper, the printed contracts will go to members by mail rather than appearing in THE JOURNAL.

The number of applications for participating physicians has been gratifying and proof that the majority of the profession is interested in the plan but it is hoped that all members will become participating physicians at once.

MEDICAL CARE IN MISSOURI

With the announcement by Missouri Medical Service on Sunday, March 11, that the medical and surgical care plan sponsored by the Missouri State Medical Association, has been launched, the State of Missouri will now be completely covered by plans organized and operated by the physicians of the state.

Surgical Care, Inc., of Kansas City, now in its second year of operation, is caring for well over 32,000 people in the western part of Missouri. Arrangements worked out by the two Blue Cross plans, which are handling the enrollment and other administrative matters for both of the plans, are such that every county in the state eventually will be covered.

Missouri Medical Service, in conjunction with the St. Louis Blue Cross plan, will handle enrollment of subscribers in the section of the state now serviced by St. Louis, while Surgical Care, Inc., in conjunction with Kansas City Blue Cross is handling enrollment in Kansas City, St. Joseph and 19 other counties in the northwest section of the state.

A special committee is to be appointed to work out details so that contracts and benefits for subscribers of both plans will be maintained on a sound basis.

Much interest has been shown by the public in the plans and it is vastly important that physicians show a concerted effort in fulfilling to the public their part in the medical and surgical care program. The support of every physician is needed so that a united front can be presented and it is hoped that every physician will soon be a participating physician in Missouri Medical Service or allied with Surgical Care of Kansas City.

In Michigan, where a prepayment plan has been in operation for several years, a survey was made recently. Some of the questions that were asked and the answers follow.

"As a group, do you think doctors of medicine are doing a good job for the public?" "Yes," 91.6 per cent; "No," 4.2 per cent, and "Don't know," 4.2 per cent.

"Is the medical-hospital plan for employees available where you work? If so, do you belong?" "Yes," 72.6 per cent; "No," 13.9 per cent, and "Don't know," 13.5 per cent.

"If you were asked to choose, which would you prefer? Voluntary prepayment program sponsored by the medical profession." 33.7 per cent. "Government-controlled program." 15.5 per cent. "Regular insurance." 13.4 per cent. "Payment for service at time rendered." 26.6 per cent. No preference was expressed in 10.8 per cent.

The public is vitally interested in its medical care and has faith in the medical profession to provide this care; and they prefer that it be done on a voluntary basis.

If you are not a participating physician in Missouri Medical Service or allied with Surgical Care of Kansas City, contact the Missouri State Medical Association.

NEWS NOTES

Drs. Hugh L. Dwyer and G. F. Pendleton were re-elected and Drs. C. Edgar Virden and Cecil M. Kohn were elected to the health council of the Council of Social Agencies of Kansas City at its annual meeting on February 20. Drs. E. H. Skinner and Cecil M. Kohn were elected to the executive committee of the group.

A new wing has been completed on the Louise G. Wallace Hospital, Lebanon, which makes the capacity of the hospital eighty beds.

Dr. John Zahorsky, St. Louis, was made president emeritus of the Bethesda General Hospital recently when he resigned as president after having been head of the institution for twelve years.

Dr. L. J. Schofield, Warrensburg, was named county physician of Johnson County recently.

The New Madrid County Court has set up a budget of $10,000 for the support of a state approved county health unit.

Drs. J. S. Summers and J. G. Bruce, Jefferson City, discussed "Modern Trends of Medicine" at a meeting of the Jefferson City Rotary Club on January 29.

Drs. R. C. Davis and Ira H. Lockwood, Kansas City, spoke on the program of a Wartime Graduate Medical meeting at the Station Hospital at Rosecrans Field, St. Joseph, on March 8. Dr. Davis spoke on "Gastrointestinal Diseases" and Dr. Lockwood on "X-Ray Diagnosis."

The following program will be presented at a meeting of the St. Louis Surgical Society at the Missouri Baptist Hospital on April 18 at 8:30 p. m.: "Relapsing Febrile Nodular Nonsuppurative Panniculitis," Dr. George Ives; "Ureteral Orifices on Lower Abdomen," Dr. J. E. Glenn; "Transdiaphragmatic Splanchnic Resection for Hypertension," Dr. D. J. Verda; "The High Frequency Current in Surgery," Dr. C. H. Shutt; "Nail in Lung; Diaphragmatic Hernia," Dr. Hudson Talbott.

Dr. A. R. McComas, Sturgeon, will be presented with a gold button commemorating his fiftieth anniversary as a Mason at Sturgeon on April 11.

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MISSOURI DOCTORS IN SERVICE

Lt. Col. Durward G. Hall, Springfield, Director of the Military Personnel Division and Acting Chief of Personnel Service, Office of the Surgeon General, has been promoted to a Colonel.

The Bronze Star with a special citation has been awarded to Col. Rex L. Diveley, Kansas City, for meritorious service in connection with military operations as senior consultant, Orthopedic Surgery Office of the Chief, EPO, from August 1942 to May 15, 1944.

Major James A. Baker, Columbia, received the Purple Heart following the battle of the Belgian bulge in which he received a leg wound. Major Baker superintended the evacuation of the wounded back across the Rhine after the recent crossing at Remagen.

Captain Fred A. Jostes, U. S. N. R., St. Louis, presented an address at the meeting of the Southern Medical Association in St. Louis, November 13 to 16, on "Physical Medicine, Its Importance in Any Rehabilitation Program." Captain Jostes is now on duty in the Twelfth Naval District Medical Office, San Francisco.

Col. Curtis H. Lohr, St. Louis, is on a thirty day leave from his duties as head of the 70th General Hospital.

LEGISLATION

HOUSE BILL NO. 206

Two physicians, members of the House of Representatives of the Missouri State Legislature, Dr. James A. Gray of Atchison County, and Dr. A. F. Wagner of Wayne County, have introduced House Bill 206. This bill, which has been introduced in the last two sessions of the legislature, is commonly known as the "Doctor or Medical Prefix Bill." The complete bill follows.

To prohibit the use by any person licensed to practice medicine, surgery, dentistry, optometry, osteopathy, chiropractic, chiropody, or veterinary surgery, or any two or more of such professions, and any person permitted to practice the curing, healing or remedying of ailments, defects or diseases of body or mind, from using the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, prescription blank, sign or public listing or display without affixing thereto suitable words or letters designating the degree held by such person or the particular type of practice in which such person is engaged which designation shall represent the profession such person is legally authorized to practice, making violation of the Act a misdemeanor and fixing the punishment therefor, and providing that the Act shall not apply to the use of said prefix by doctors of letters, doctors of science, doctors of law, doctors of divinity, or doctors of philosophy not practicing the curing, healing or remedying of bodily or mental ailments, defects or diseases.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. No person now or hereafter licensed in this state to practice medicine, surgery, denistry, optometry, osteopathy, chiropractic, chiropody, or veterinary surgery, or any two or more of such professions, and no persons specifically permitted by law to practice the curing, healing or remedying of ailments, defects or diseases of body or mind with or without a license, shall use the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, prescription blank, sign or public listing or display of any nature whatsoever, without affixing thereto suitable words or letters clearly designating the degree held by such person or the particular type of practice in which such person is engaged which designation shall represent the profession such person is authorized to practice by license or privilege under the laws of this state.

Section 2. Nothing contained in this Act shall prohibit the use of such prefix by any person holding the degree of doctors of letters, doctor of science, doctor of law, doctor of divinity, or doctor of philosophy, provided such person does not practice the curing, healing, or remedying of ailments, defects or diseases of body or mind.

Section 3. Any person who shall violate the pro-

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MO. 4-45

visions of this Act shall be guilty of a misdemeanor and upon conviction thereof shall be punished by fine of not more than five hundred dollars ($500.00) or imprisonment in the county jail for not more than six months, or by both such fine and imprisonment. Each day upon which this Act shall be violated shall be and constitute a separate offense and shall be punishable in like manner with each other offense.

HOUSE BILL NO. 138

A bill to establish a full course in medicine in the University of the Missouri, the last two years to be conducted in Kansas City, was introduced by Representatives Tanner, Hamlin, Carrol, Gill, Gibson, Gavin, Oliver, McKaughan, Steinbacher and McNamara, all of Jackson County, and Representative Gray of Atchison County. The complete bill follows.

Authorizing and directing the Curators of the University of Missouri to establish and conduct a full and complete course of medical and surgical instruction in the University of Missouri, the last and concluding two years of which shall be conducted in Kansas City, and authorizing and directing the Curators of the University of Missouri to purchase necessary land, erect necessary buildings, open and establish any department or course of instruction, provide necessary equipment, instructors, and authorizing said Curators to accept any gift of real or personal property for the benefit of said medical school in Kansas City, and providing that said Curators shall not accept any deed to any real property until the Attorney General has approved said deed, and providing that the provisions of Article 22, Chapter 72, Revised Statutes of Missouri, 1939, shall apply to said medical school whenever the same are not inconsistent with the provisions of this act.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. The Curators of the University of Missouri are hereby authorized and directed to establish and conduct, as soon as possible and practicable after the effective date of this act, a full and complete course of medical and surgical instruction in the University of Missouri as an integral part of which the last and concluding two years of such instruction shall be conducted by said Curators in Kansas City, Missouri.

Section 2. For the purpose of establishing and conducting said medical and surgical school in Kansas City, the Curators of the University of Missouri are hereby authorized and directed to purchase necessary land, erect necessary buildings, open and establish any department or course of instruction, provide necessary equipment and instructors, and do all things necessary or desirable for the construction and operation of said school.

Section 3. The Curators of the University of Missouri are hereby authorized to accept any gift of real or personal property which may be tendered to them for the benefit of said medical school in Kansas City, provided that said Curators shall not accept a deed to any real property until the Attorney General has approved said deed conveying such real property in fee simple.

Section 4. The provisions of Article 22, Chapter 72, Revised Statutes of Missouri, 1939, shall apply to the medical school established by this act whenever the same are not inconsistent with the provisions of this act.

STATE MEDICAL EXAMINERS

For the first time in a century the people of Missouri have an opportunity to rewrite the basic law relating to medicolegal investigations. The early settlers of the American states copied the governmental structure of England and included the office of coroner in many state constitutions. Although the coroner was adequate to cope with the problems of the eighteenth and nineteenth centuries, it has become increasingly evident that the complexities of life in the twentieth century require a more up-to-date system for scientific crime detection. The members of the Missouri Constitutional Convention of 1943 and 1944 recognized this changed attitude and did not include the coroner as a constitutional officer. The legislature in the next two years should enact a statute which will make available to the people of Missouri the most modern procedures available. There is no more serious offense against society than the taking of the life of another. Society banded together for the common good—that is, the government—deserves the best.

THE ROLE OF THE STATE IN SUSPECTED HOMICIDE

The steps taken by government when homicide is known or suspected to have occurred are divided into two phases—inquestal and judicial.

The inquest is a preliminary fact-finding procedure initiated by the discovery of a dead body. It has been the experience in other states that the cause of about 20 per cent of all deaths in large urban communities and from 10 to 15 per cent of all deaths in rural areas is sufficiently obscure as to require investigation. In actual practice in Missouri, using the years 1936 and 1941 as the average, 6.7 per cent of deaths in rural counties, and 16.7 per cent in urban counties were the subject of a coroner's inquest.

Certain questions must be answered by the preliminary investigation, and the answers must be as definite as the questions.

1. Can the corpse be identified?
2. When did death occur?
3. Was the fatal injury received at the place in which the body was found?
4. Can the probable circumstances in which the fatal

The Neurological Hospital, 2625 The Paseo, Kansas City, Missouri. Operated by the Robinson Clinic, for the care and treatment of nervous and mental patients and associated conditions.

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injuries were received be reconstructed from an examination of the body or of the place in which it was found?

5. Is there any evidence to indicate that the decedent was specially predisposed to injury by accident, suicide or assault by reason of disease or self-induced intoxication?

6. What objective evidence is there relating to the length of time that elapsed between the incurment of injury and the occurrence of death?

7. If there are multiple injuries, in what sequence were they received?

8. Is there evidence that more than one assailant participated in the attack and if so what injuries can be attributed to each?

9. Was the fatal injury immediately incapacitating and, if not, to what extent and for how long might the decedent have been capable of executing voluntary acts after the injury was received?

10. Did the assailant leave anything in or on the body of the victim that might assist in his apprehension and identification?

11. Is it likely that recognizable traces of the victim were carried away in or on the person of the assailant?

When the information based on these eleven questions is placed at the disposal of the police, they are in a much better position to collate it with their evidence and reach a conclusion on the all important question—how and by whom did this person come to his death. If, in the opinion of the prosecuting officer, there is adequate evidence of guilt he then proceeds to the second phase—judicial. Witnesses are called, and a jury is asked to weigh the evidence.

If the inquest is to yield the true facts it must be a cooperative integrated procedure by police officers and scientists trained for this type of work. Who today would venture to suggest that each of the policemen should be elected by the people? Yet we have continued to elect the county officer who is charged with the collection of the evidence which will be used to determine whether or not one person is to pay with his life or liberty for the life of another.

STATE MEDICAL EXAMINERS

There is a growing conviction of the people in a democratic government that officials not concerned with policy-making should be appointed because of training, ability and experience. There is also an increasing demand in government to equalize the differences between thickly populated and thinly populated districts. Urban communities have available facilities which must be brought to the rural counties. These principles have been accepted in regard to schools, in regard to roads and in regard to police protection. Now is the time to extend them to the scientific detection of crime and replace the elected coroner with appointed medical examiners.

A state-wide system of medical examiners should be established in which the medical examiners are appointed by a board made up of those most concerned with and competent to deal with the problems. In order to secure able men the term of office must be not less than seven years, and salaries adequate to meet the requirements of supply and demand must be paid. The staff must be completely free of political influence and protected from discharge except for incompetence.

The most important item in any system, be it coroner or medical examiner, is the selection of cases to be investigated. The following statute, essentially that now in force in New Jersey, is the best and should be enacted in Missouri:

"When in the State any person shall die as a result of violence, or by casualty, or by suicide, or suddenly when in apparent health, or when unattended by a physician, or within 24 hours after admission to a hospital or institution if unattended by a physician within the preceding week, or in prison, or in a suspicious or unusual manner or under any of the above circumstances in any institution located in the State and maintained in whole or in part at the expense of the State, or County, the senior police officer, or the representative of the Sheriff's office, or the Superintendent or Medical Director of the institution in which death occurred, or the physician called in attendance, or any citizen who becomes aware of the death of a person under these circumstances, shall immediately notify the Chief State Medical Examiner or an Associate or Assistant State Medical Examiner or a County Medical Examiner of the known facts concerning the time, place, manner and circumstances of the death. Immediately on receipt of this information the Chief Medical Examiner, or an Associate or an Assistant Medical Examiner or County Medical Examiner shall go to the dead body and take charge of the same. Such medical examiner shall fully investigate the facts concerning the circumstances of the death, taking the names and addresses of as many witnesses thereto, as it may be practical to obtain, and shall reduce all such facts to writing and file the same in the Office of the State Medical Examiner. Such Examiner shall take possession of any portable objects, which in his opinion may be useful in establishing the cause of death and deliver them to the Police or to the laboratories or individuals designated by the Chief of Police or Sheriff, or by the Board of Medical Examiners. In the absence of a Police officer the Medical Examiner shall take possession of all property of value found on or about such a person, making an exact inventory thereof on his report and deliver such property to the Sheriff or Chief of Police."

A bill incorporating these points and many others will be introduced in the legislature in the near future. It should receive the full support of the medical profession.

FINANCIAL STATEMENT FOR 1944

R. A. LENNERTSON & COMPANY
ST. LOUIS, MISSOURI

ROBERT A. LENNERTSON
CERTIFIED PUBLIC ACCOUNTANT

MEMBER AMERICAN INSTITUTE
OF ACCOUNTANTS

March 20, 1945.

Missouri State Medical Association,
634 North Grand Boulevard,
St. Louis, Missouri.

Gentlemen:

We have completed our examination of the accounts of the Missouri State Medical Association for the year 1944 and have prepared therefrom the following attached exhibits:

Exhibit A. Balance Sheet.
Exhibit B. Statement of Income and Expenses.
Exhibit C. Statement of Committee and Meeting Expenses.
Exhibit D. Dues Receivable and Membership by Counties.

SCOPE OF EXAMINATION

The Balance Sheet as at December 31, 1944, and the Statement of Income and Expenses for the year 1944 have been reviewed. In connection therewith, we have examined or tested the accounting records of the Association but we have not made a detailed audit of the transactions.

Cash in banks at the close of the year as shown by the books was reconciled with the regular monthly bank statements and confirmations received direct from the depositaries. The petty cash fund of $25.00 and the $5,000.00 United States Savings bond were verified by actual count. Appropriate test verifications were made of the income and expense accounts for the period.

BALANCE SHEET

Exhibit A presents the asset and liability accounts of the Association as at December 31, 1944, and discloses a sound financial position.

Members' unpaid dues in the sum of $328.00 represent 1944 dues paid early in January, 1945. All other unpaid dues were eliminated by dropping forty-three doctors from the membership at the end of the year. A summary of the dues receivable and membership by counties appears in Exhibit D.

Advance payments by exhibitors in the sum of $1,246.75 were refunded after the close of the year due to the cancellation of the 1945 Annual Session at the request of the government.

Wyeth
REG. U. S. PAT. OFF.

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[1]LUND C. J., and KIMBLE M. S.: Plasma Vitamin A and Carotene of the Newborn Infant, Am. J. Obst. and Gynec. 46: 207-221 (Aug.) 1943.

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STATEMENT OF INCOME AND EXPENSES

After providing for all ascertained expenses, the Association realized a net income of $9,281.57 as set forth in Exhibit B. A comparative summary of income and expenses for the past three years follows:

Particulars	Year 1944	Year 1943	Year 1942
Income	$ 50,556.27	$ 37,579.66	$ 36,589.24
Expenses	41,274.70	32,853.08	33,012.23
Net Income	$ 9,281.57	$ 4,726.58	$ 3,577.01

The books of account are maintained on the accrual basis for all accounts except members' dues which are taken into income on a cash basis as collected regardless of the period covered by the dues paid.

GENERAL

Insurance policies were in force at the close of the year as follows:

Fire policy on furniture and fixtures	$ 1,000.00
Fidelity Bond—Treasurer	50,000.00
Fidelity Bond—Secretary	1,000.00
Fidelity Bond—Executive Secretary	1,000.00
Employee's life-endowment policy with disability benefits	12,000.00

The records of the Association examined by us indicated that the books have been well maintained during the year 1944 in conformity with generally accepted accounting principles which have been applied on a basis consistent with that used in the preceding period.

Yours very truly,
R. A. LENNERTSON & CO.

EXHIBIT A

Missouri State Medical Association

December 31, 1944

BALANCE SHEET

Assets

Cash:		
Mercantile-Commerce Bank and Trust Company (Treasurer's Account)	$29,326.53	
Mercantile-Commerce National Bank (Secretary's Account)	503.69	
Petty Cash Fund	25.00	$29,855.22
U. S. Savings Bond Series G—Maturity May, 1955		5,000.00
Accounts Receivable—Advertisers (Paid January 1945)		936.82
Dues Receivable—Exhibit D (Paid January 1945)		328.00
Furniture and Fixtures		1,000.00
Prepaid Expense:		
Advance for Traveling Expense		198.59
		$37,318.63

Liabilities

Accounts Payable:		
Supplies and Expenses	$ 1,391.83	
Federal Withholding Tax	443.10	
Advance Payments by Exhibitors (Refunded in 1945)	1,246.75	$ 3,081.68
Deferred Credit to Income:		
Advance Payments by Advertisers		142.00
Contingent Liability to members on six malpractice suits—$1,800.00		....
Reserve for Uncollected Dues		328.00
Reserve for Future Activities:		
Balance January 1, 1944	$24,485.38	
Add: Excess of Income over Expenses for the year 1944 per Exhibit B	9,281.57	33,766.95
		$37,318.63

EXHIBIT B

Missouri State Medical Association

Statement of Income and Expenses for the Year 1944

Particulars	General Activities	Journal Publication	Together
INCOME:			
Dues received (includes $1.00 per member annually for THE JOURNAL)	$ 24,988.00	$ 2,352.00	$27,340.00
Donations (Honor Members)	250.00	.....	250.00
Rentals—Annual Session exhibit space	3,884.00	.....	3,884.00
Rent from Sub-tenant (Office space)	540.00	.....	540.00
Interest on U. S. Savings Bonds	104.17	.....	104.17
Subscriptions to THE JOURNAL non-members	.....	46.80	46.80

Clinical Evidence
INDICATES THAT...

"Marked or complete relief of symptoms" occurred in 73 menopausal patients treated with Benzestrol.
JAEGER, A. S.
Jl. Indiana State Med. Soc. 37; 117, 1944

"The very low incidence of side reactions, particularly of nausea, is of clinical importance." These patients were given Benzestrol by mouth.
ROBERTS, H. K. et al.
J.A.M.A. 123:261: 1943

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Literature and Sample on Request

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Primarily, TAMPAX meets *all* the requirements of modern menstrual hygiene — since (as one specialist summarizes) "the evidence is conclusive that the tampon method of menstrual hygiene is safe, comfortable and not prejudicial to health..."[3]



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REFERENCES – 1 West. J. Surg. & Gyn., 51:150, April, 1943. 2 Clin. Med. & Surg., 46:327, August, 1939. 3 Med. Rec., 155: 316, 1942. 4 Crossen, H.S. and R. J.: Diseases of Women, C. V. Mosby Co., St. Louis, 9th ed., 1941.

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Advertising space—THE JOURNAL	.....	18,391.30	18,391.30
Total Income	$29,766.17	$20,790.10	$50,556.27
EXPENSES:			
Officers' Salaries	$ 3,317.00	$ 1,659.00	$ 4,976.00
Office Salaries	5,440.00	2,720.00	8,160.00
Office Rent and Light	1,653.30	.....	1,653.30
Postage	421.82	269.43	691.25
Stationery, printing and office supplies	845.10	.....	845.10
Directories and Clipping Service	179.29	.....	179.29
Telephone and Telegraph	804.47	.....	804.47
Insurance—General	76.64	.....	76 64
Employee's Retirement Insurance	1,023.36	.....	1,023.36
Fees, Taxes and General Expenses	558.40	.....	558.40
Traveling Expenses	606.81	.....	606.81
Committee and Meeting Expenses (Exhibit C)	11,166.80	.....	11,166.80
Equipment Purchases and Repairs in Lieu of Depreciation	336.82	.....	336 82
THE JOURNAL—Paper, Printing, Mailing, etc.	.....	8,332 08	8,332.08
Cash Discounts to Advertisers	.....	163.03	163 03
Commissions on JOURNAL Advertising	.....	1,701.35	1,701.35
Total Expenses	$26,429 81	$14,844.89	$41,274.70
Net Income for the Period	$ 3,336.36	$ 5,945.21	$ 9,281.57

EXHIBIT C

Missouri State Medical Association

Statement of Committee and Meeting Expenses for the Year 1944

Annual Session		$ 3,034 61
Council Meetings	$ 1,048.32	
Councilors' Expenses	1,359.18	
Delegates to A. M. A.	194.40	
Women's Auxiliary	90 03	2,691 93
Conference and Councilor District Meetings	$ 11.78	
Industrial Health	12.90	
Medical Economics	54.85	
Postgraduate Instruction	79.54	
Postwar	215.29	
Prepayment Medical Plan	470.88	
Public Policy and Public Relations	4,548.12	
Scientific Work	28.50	
Venereal Disease Control	18.40	5,440.26
Total		$11,166 80

EXHIBIT D

Missouri State Medical Association

Dues Receivable and Membership by Counties December 31, 1944

Counties	MEMBERSHIP Total	Junior	Active	Honor	1944 Dues Paid Jan. 1945	Pre-paid Dues
Andrew	9		9			
Audrain	15		14	1		
Barry-Lawrence-Stone	33		31	2		
Barton	3		3			
Bates	9		8	1		
Benton	5		5			$ 30
Boone	52	1	47	4		
Buchanan	100		78	22		
Butler	18	2	14	2		
Caldwell-Livingston	14		14			
Callaway	15		10	5		
Camden	2		2			30
Cape Girardeau	35		35			210
Carroll	6		6			45
Carter-Shannon	5		5			
Cass	15		12	3		
Chariton	16		7	9		
Christian	5		5			
Clay	24		23	1		105
Clinton	9		9			
Cole	30	1	29			
Cooper	12		12			
Dallas-Hickory-Polk	10		9	1		120
DeKalb	3		2			
Dent	6	1	5			



Until her physician has opportunity to observe and treat her symptoms, many a woman —even today—faces the failing fires of the menopause in confusion.

Baffled by irregularity and fits of depression, harried by pain and vasomotor disturbances, she often fears the interruption of a productive life. But when she seeks your advice, you can take satisfaction in the knowledge that you have the answer to her problem—*estrogenic therapy.*

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Dunklin	23		19	4		
Franklin	23	1	22			
Gasconade-Maries-Osage	0					
Greene	106	1	96	9		
Grundy-Daviess	17		14	3		
Harrison	6		6			15
Henry	17		15	2		
Holt	6		5	1		
Howard	6		6			
Howell-Oregon-Texas	18		16	2		
Jackson	586	17	475	94		
Jasper	67		62	5		
Jefferson	16		14	2		
Johnson	15		15			
Laclede	11		9	2		
Lafayette	26		26			
Lewis-Clark-Scotland	8		8			30
Lincoln	4		4			
Linn	9		8	1		
Macon	5		5			
Marion-Ralls	27		26	1		
Mercer	9	2	5	2		82
Miller	6	1	5			
Mississippi	8		7	1		
Moniteau	6		6			90
Montgomery	6		6			60
Morgan	3		3			
New Madrid	8		8			
Newton	14	1	13			
Nodaway-Atchison-Gentry-Worth	29		27	2	$ 72	
North Central	25		24	1		
Pemiscot	15		15			
Perry	5		5			30
Pettis	30		27	3		
Phelps-Crawford	18		15	3		90
Pike	12		10	2		
Platte	10		9	1		
Pulaski	6		6			
Randolph-Monroe	23	1	21	1		
Ray	8		8			
St. Charles	25		25			
St. Francois-Iron-Madison-Washington-Reynolds	38		35	3		
Ste. Genevieve	5		5			75
St. Louis City	1215	109	1052	54	256	135
St. Louis	231	7	212	12		60
Saline	22	1	20	1		
Scott	15		15			150
Shelby	6		5	1		
Stoddard	5		4	1		
Taney	1		1			
Vernon-Cedar	24	2	15	7		
Wayne	0					
Webster	2		2			
Wright-Douglas	8		7	1		
Totals	3284	148	2863	273	328	1357

BUDGET 1945

Salaries	$14,500.00
Printing Journal	8,500.00
Defense	500.00
Postage and express	1,250.00
Postgraduate	500.00
Printing and stationery	750.00
Travel	1,200.00
Telephone and telegraph	850.00
Rent and light	1,660.00
Meetings and committee expense	8,000.00
Public relations	9,000.00
Insurance annuity	1,023.36
Miscellaneous	1,000.00
Remodeling office	700.00
	$49,433.36

Clinical Lectures on the Gallbladder and Bile Ducts. By Samuel Weiss, M.D., F.A.C.P. Clinical Professor of Gastroenterology, N. Y. Polyclinic Medical School and Hospital; Gastroenterologist, Jewish Memorial Hospital, N. Y.; Consulting Gastroenterologist, Beth David Hospital, N. Y., Long Beach Hospital, Long Island, etc. Chicago: The Year Book Publishers. 1944. Price $5.50.

This 504 page monograph covers the field adequately and completely in a clear and concise manner. All phases of disease of the gallbladder and ducts are covered beginning with introductory chapters on anatomy, physiology, history taking and physical examination as well as roentgen examination, through each of the separate entities, and concluding with medical and surgical treatment and their indication and preoperative and postoperative care.

The chapter on "Diagnostic and Therapeutic Duodenal Drainage" is very good in that specific and detailed instructions are given on how to carry out the procedure; its indications for and against, and how to evaluate the findings.

There are chapters on Cholelithiasis: "Medical Management," "Diet and Hygiene Therapy," and one on differential indications for medical as against surgical treatment. These are especially valuable since the medical management of gallbladder disease is not frequently discussed in modern publications and there is probably a too frequent tendency to resort to surgery, immediately the diagnosis is made.

One criticism might apply; namely, a too frequent reference in the discussions of therapeutics to special proprietary medicines, not as yet widely available or used because of questionable efficacy, and special waters such as are dispensed at famous spas and watering places which also might be difficult to obtain in parts of the country other than the east coast. Since most of these remedies can be substituted and simulated with pharmacopeal prescriptions it would seem more useful to the general profession to use such prescriptions, rather than proprietary preparations.

The general presentation is clear and easily and quickly read and assimilated. This would be a good monographic presentation of the subject to add to any medical library. H. P.

Urine and Urinalysis. By Louis Gershenfeld, B.Sc., P.D., Ph.M., D.Sc. Professor of Bacteriology and Hygiene and Director of the Bacteriological and Clinical Chemistry Laboratories at the Philadelphia College of Pharmacy and Science. Second Edition, thoroughly revised. Illustrated with 42 engravings. Philadelphia: Lea and Febiger. 1943. Price $3.25.

The second edition as published in 1943 is an extremely compact technical text and as it is written not only for the medical and nursing professions, but also for technicians, pharmacists and chemists, it is strictly a reference monograph.

The introductory chapter concisely reviews the anatomy of the kidney and the physiology of its structures. It includes the mechanism of the secretion of the urine. This is followed logically by the various factors in micturition; also the methods of collecting and preserving the urine specimens until these analyses can be obtained.

The gross characteristics, as well as the chemical composition, and also the abnormal or pathologic constituents of the urine are reviewed. The qualitative, quantitative and microscopic studies are thoroughly covered in separate chapters. Four-fifths of the space of the book is consumed in the foregoing work.

The urologist will be quite interested in the remaining three chapters. The first chapter deals specifically with the varieties of urinary calculae; the urine characteristics as it pertains to each and, finally, the technic of the qualitative analysis of the calculae.

The second chapter deals with the less frequently used types of urinary tests in toxicology, drug addictions and pregnancy.

The final chapter deals only with various types of renal function.

The entire book is compiled carefully and is a handy reference work for the clinician but is, of course, not suited for the intricate needs as to biologic, physiologic, chemistry, nor for clinical laboratory methods.

R. L. H.



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THE MENOPAUSE, a normal event in a woman's life, is for some troublesome and stormy.

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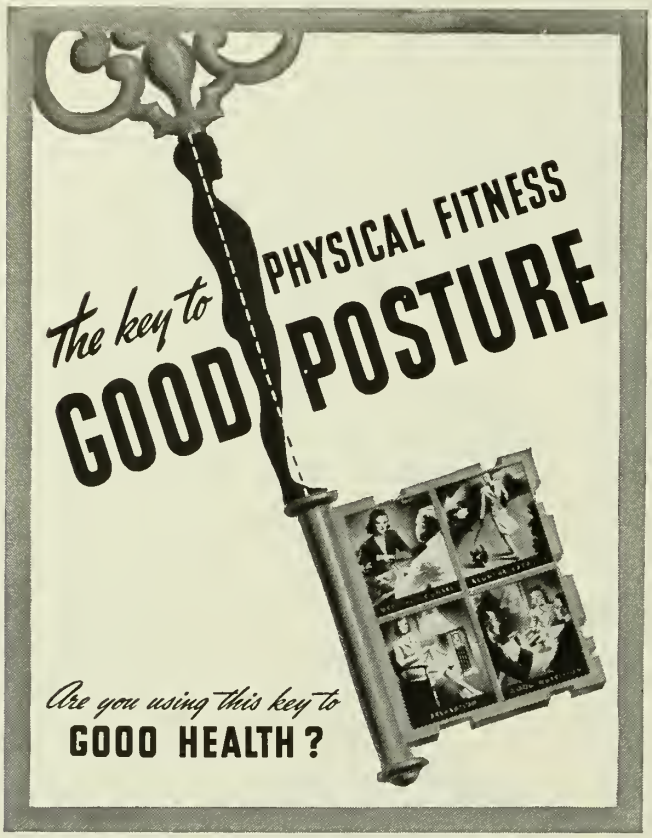
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While the public will be reached through every popular channel of public information, emphasis is again being placed on the distribution of authoritative literature to schools, colleges, medical and government bodies, industrial, professional and civic public health groups.

Physicians, educators and lay groups in the field of public health have shown in practical cooperation and voluminous correspondence that they approve the content and methods of National Posture Week and its year-round physical fitness program. It is our hope that we will continue to merit this support in this year of Victory and during the post-war years of adjustment which will present so many problems to those charged with maintaining the health of the nation.

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REACTION TO INJURY. Pathology for Students of Disease Based on the Functional and Morphological Responses of Tissues to Injurious Agents. By Wiley D. Forbus, M.D., Professor of Pathology, Duke University and Pathologist to the Duke Hospital. 532 illustrations, 20 of which are in color. Baltimore: Williams and Wilkins Company. 1943. Price $9.00.

A new presentation of the basic science of pathology to the medical profession is found in this treatise which is designed for the guidance of students regardless of whether they be in medical school or physicians in private practice.

The author has deviated from the usual conventional sterotype presentation of the pathology as far as general and special pathology is concerned and instead has presented it in an unusual but very interesting manner, in that he has presented the whole subject of the disease entity as it involves the various systems and reacting cells, tissues and organs. The problem of pathogenesis is emphasized heavily rather than the specific etiology of the various disease process. In presenting the comprehensive problem of pathogenesis, the author has specifically and clearly written about the various types of entities themselves and has traced in an orderly and characteristic manner, the events which unveil in disease process. He has presented the reader with an intelligent grasp of the entire situation and one can visualize changes as they exist in the body as they react to various pathologic entities. In so doing, he has designated his book, reaction to injury, and shows very clearly that the individual is capable of reacting in three ways; first, by resisting; second, by submitting; and third, by effecting an adaptation. The entire subject is to be considered in two separate volumes consisting of respective parts.

This particular book begins with a section devoted to the nature and causation of disease. In part one, the student is given an ample opportunity to see that the study of disease is simply continuation and intergration of studies which were begun some time ago. He has introduced a new projectional and functional type of basic thinking, particularly on anatomic observation. Following general orientation, he has then introduced how the host reacts to specific type infection, still emphasizing pathogenesis definitely.

In part two there is a complete outline of resistive reaction as far as injury is concerned. The reading of this text is extremely easy, it is clearly and concisely written and presented in an easy manner. The reader may interpret any one particular section of the book, as it is complete in itself. The book contains 532 excellent illustrations, 20 of which are in color, with adequate explanation and descriptions of each. At the termination of each particular subject there is adequate basic bibliography which one may use for further information regarding specific diseases. This is an excellent book not only for the medical student but also for the practicing physician. The book is indeed a boon to the medical student for in it he will find an entirely different concept and presentation of disease, particularly as a response on the part of the body to the disease which he is vitally interested in and this in turn will fully correlate pathologic physiology and explain to him the various clinical entities which he will encounter. Likewise the practicing physician will find this book of value.

A. E. U.

PENICILLIN FOR MENINGOCOCCEMIA

The prompt administration of penicillin in the case of a waterhouse-Friderichsen syndrome accounts for at least one favorable recovery, J. M. Hayes, M.D., Los Angeles, and John F. Whalen, M.D., Altadena, Calif., report in *The Journal of the American Medical Association* for March 17. With the increasing prevalence of meningococcic meningitis there also has been an associated rise in the number of cases of the so-called Waterhouse-Friderichsen syndrome.

COUNCIL ACCEPTED



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Prescribe 2 or 3 tablets of Theocalcin, t. i. d. After relief is obtained, continue with smaller doses to keep the patient comfortable. Theocalcin strengthens heart action, diminishes dyspnea and reduces edema.

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"...if the individual is depressed..."

". . . . if the individual is depressed or anhedonic . . . you can change his attitude . . . by physical means just as surely as you can change his digestion by distressing thought . . . *In other words, drugs and physical therapeutics are just as much psychic agents as good advice and analysis* and must be used together with these latter agents of cure."

Myerson, A.—*Anhedonia*—
Am. J. Psychiat., July, 1922.

When this was written—in 1922—the only stimulant drugs employed in the treatment of simple depression were of limited effectiveness.

Only in the last decade has there been available—in Benzedrine Sulfate—a therapeutic weapon capable of alleviating depression, overcoming "chronic fatigue" and breaking the vicious circle of anhedonia.

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Maybe it's because he's a doctor, but Dr. Walters is pretty smart at solving other people's problems. Like Alvin Blake's locusts.

For years, Alvin has been trying to get rid of a grove of locusts. They aren't using up any good land, but they annoy Alvin. Every time he cuts them down, up they shoot again.

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From where I sit, that's sound philosophy—applies to people just as much as locust trees. You can't always change folks to your way of thinking—some may prefer beer to buttermilk, or a double harness to a single one—but you can get to like them (if you take the trouble).

And first thing you know, the little differences don't matter.

Joe Marsh

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WANTED—Otolaryngologist to take charge of well established St. Louis practice for three to six months, about June 1. Must have training and experience. Excellent opportunity for returning medical officer to become established. Address Box 141, Missouri State Medical Association, 623 Missouri Building, St. Louis 3, Mo.

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MENTAL patients have every comfort that their home affords.

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COMMERCIAL ANNOUNCEMENTS

NOT CANCELLED

The art contest sponsored by Mead Johnson & Company on the subject of "Courage and Devotion Beyond the Call of Duty" (on the part of physicians) has *not* been cancelled or postponed.

The closing date remains May 27, 1946.

There will be no annual exhibit *this year* of the American Physicians Art Association, due to the cancellation of the American Medical Association meeting which had been scheduled to take place in Philadelphia, June 18-22, 1945.

For full details regarding the $34,000 prizes and the "Courage and Devotion" contest, write Dr. Francis H. Redewill, Secy., A.P.A. Assn., Flood Bldg., San Francisco, Cal., or Mead Johnson & Co., Evansville, Ind.

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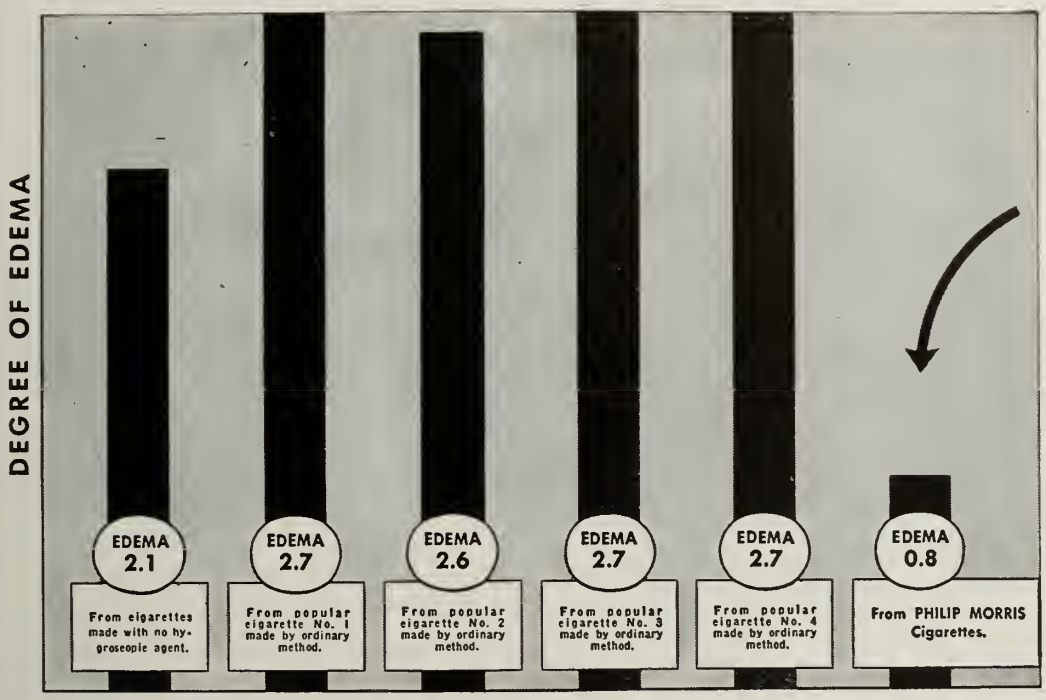
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HOW IRRITATION VARIES FROM DIFFERENT CIGARETTES
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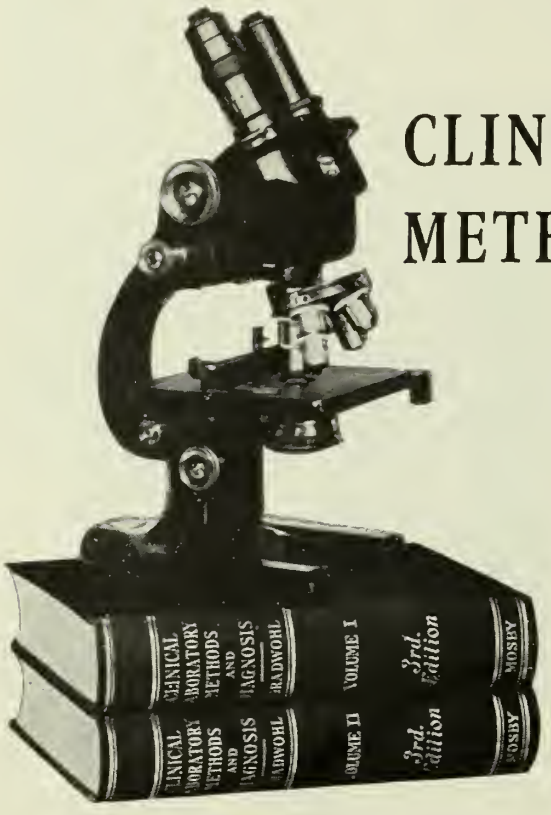
*N. Y. State Journ. Med. 35 No. 11,590 **Laryngoscope 1935, XLV, No. 2, 149-154

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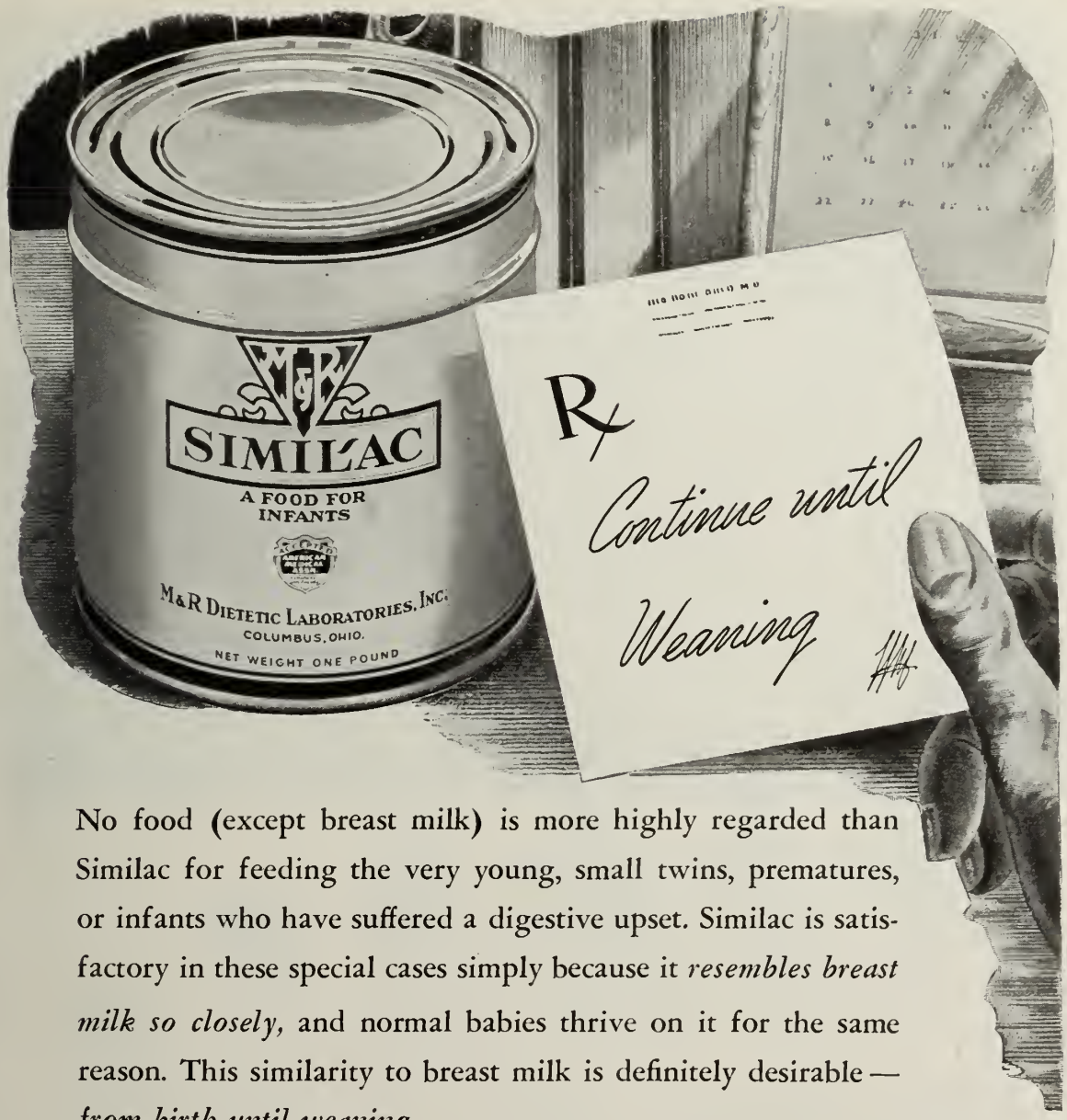
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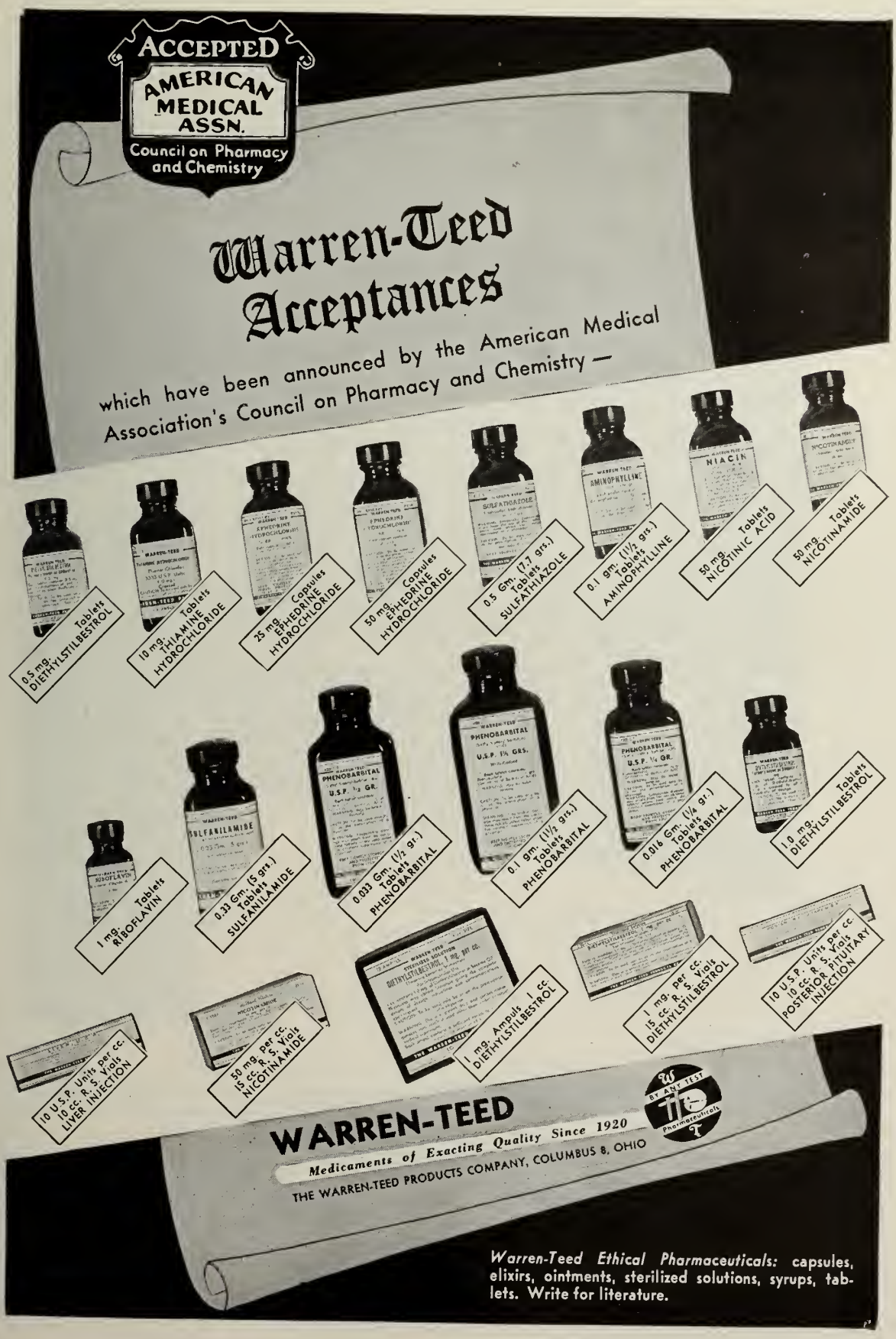
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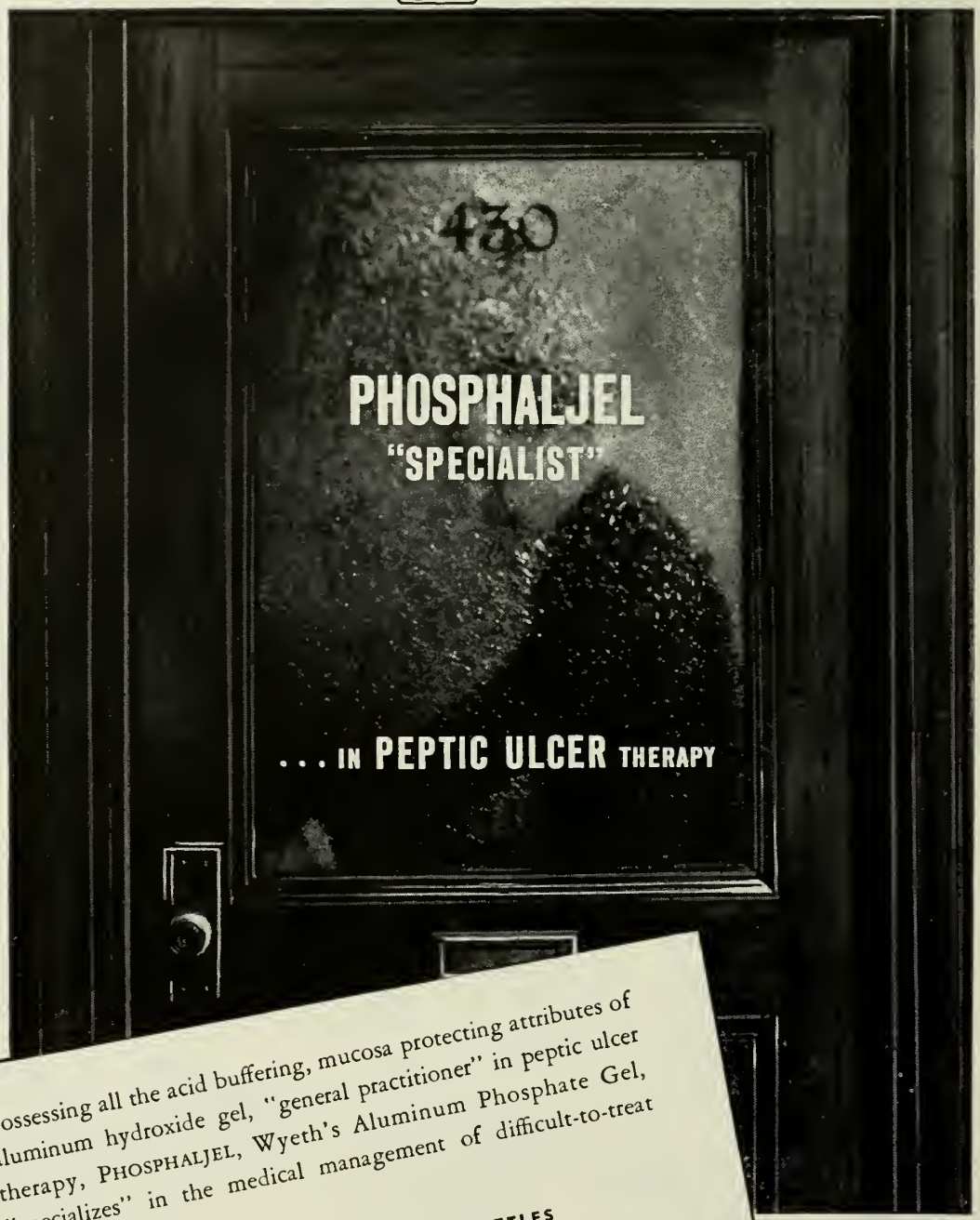
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Penicillin in Treatment of Gonorrhea

Thrombo-Angiitis Obliterans and Peripheral Arteriosclerosis

Case Reports of Barnes Hospital

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EDITORIALS

The Council

Locations of Returning Medical Officers

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nor merely

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		or (b) Intramuscularly: 10,000 to 20,000 every 3 or 4 hr.	40,000 to 120,000 or more	(b) Concentration: 5000 U. per cc. normal saline.
		or (c) Intramuscular drip	40,000 to 120,000 or more	(c) Total daily dose in 250 cc. normal saline.
Infants	5000 to 10,000	3000 to 10,000 intramuscularly every 3 hr.	20,000 to 40,000 or more	Each dose in 1 or 2 cc. of normal saline.
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Sulfonamide Resistant Gonorrhea	20,000 every 3 hr. intramuscularly for 5 doses		100,000	Results of treatment should be controlled by culture of exudate.
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*Based upon recommendations by Chester S. Keefer, *War Production Board Penicillin Leaflet*, Apr. 1, 1945; and by Wallace E. Herrell and Roger L. J. Kennedy, *Journal of Pediatrics*, 25:505, Dec., 1944.

● *Write for pocket size copies of this Dosage Table*

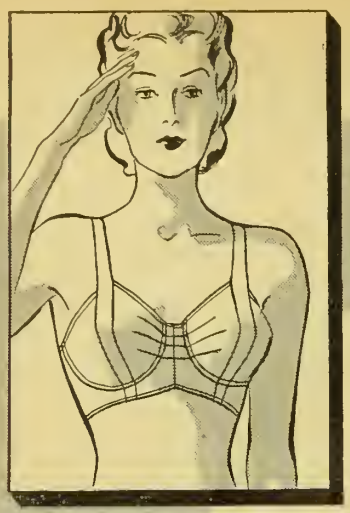
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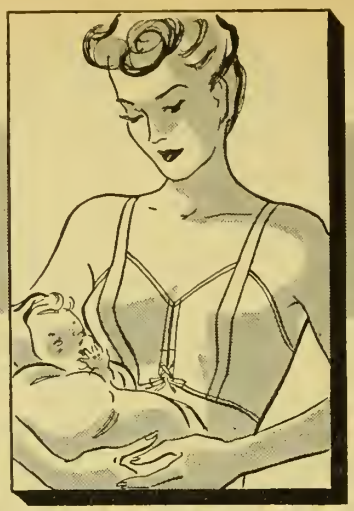
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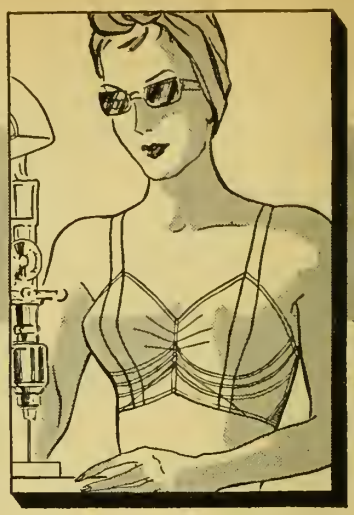
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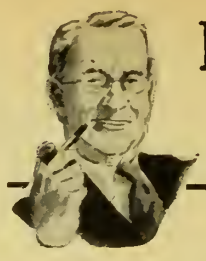
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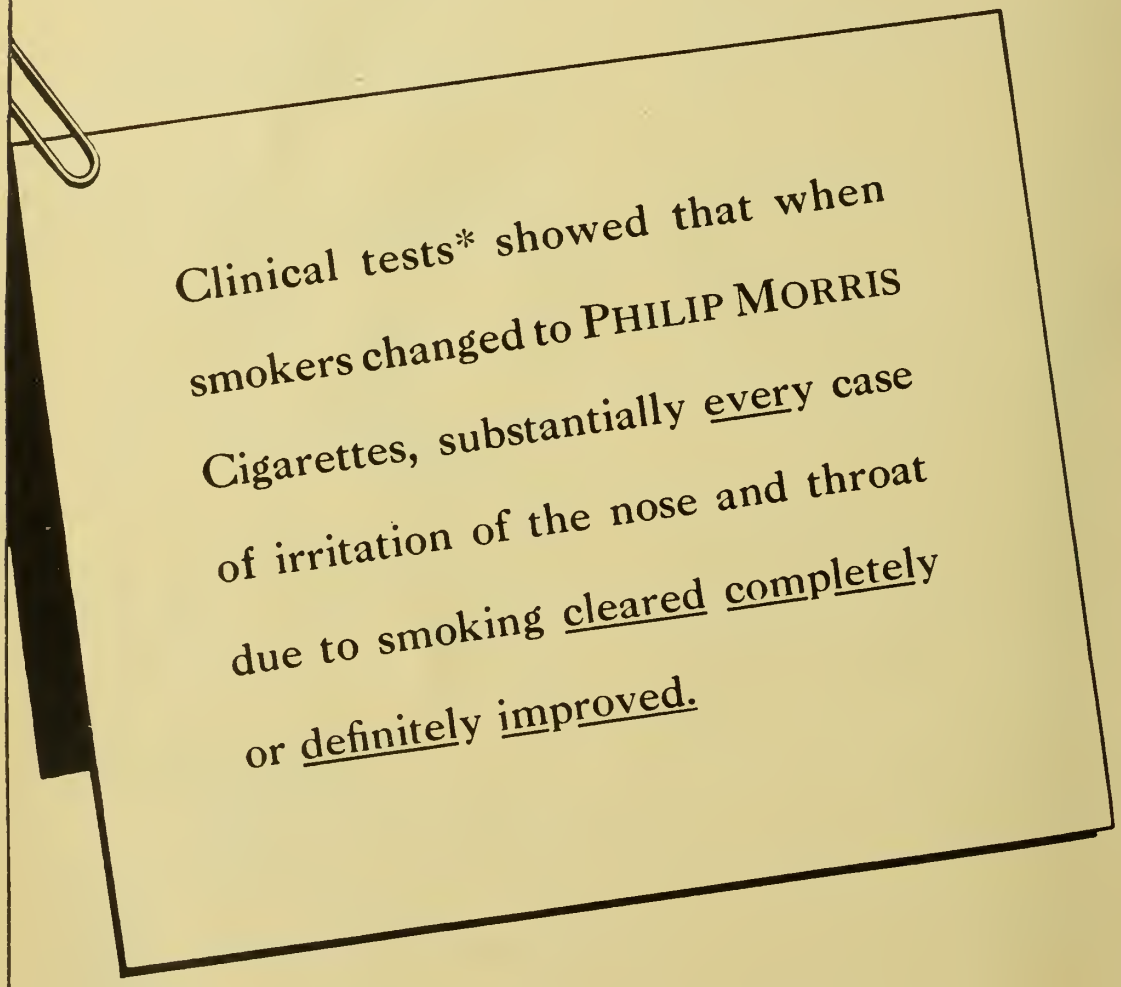
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PENICILLIN IN THE TREATMENT OF GONORRHEA

LIEUTENANT D. R. SEABAUGH, MC-V(S), USNR
CAPE GIRARDEAU, MO.

In one of the large Naval Hospitals, designated early in 1943 as a penicillin trial center, it was the good fortune on the venereal service to have a considerable quantity of the then restricted total unit allotment of the drug made available for the treatment of gonorrhea. In that period when the supply was by no means unlimited, by directive, it was requested that the drug be used only in so called sulfa-fast cases and specific dosage too was recommended with periodic suggestions for smaller and smaller amounts in an attempt to spread the available material over as many cases as possible producing, thereby, the greatest possible saving in man-hospital days.

By the early part of 1944, however, after several hundred cases had been treated by various technics and various dosages, it became rather obvious that for the hospitals large service the intermuscular method of interval administration was probably the most practical and, further, that a total dosage of less than 100,000 units, although productive of complete cures in many instances, was not really economical because of the necessity of so many cases requiring retreatment.

With the administration of the drug standardized then and with an increased availability of the drug which made possible its immediate administration to every case, eliminating its restriction to only sulfa-fast cases, it was felt that sufficient standardization was present for an accurate estimation of the actual curative effects of the drug.

It is toward this end that a study of the following two hundred and eighty-one consecutive cases was made.

METHOD OF STUDY

In this series, cases appearing on the service were subjected to an initial smear and only those in which gonococci could be identified microscopically are included. Penicillin as the Sodium Salt was given immediately and according to the plan of treatment the full course of 100,000 units was completed in five injections spaced at two hour intervals over a period of eight hours. These patients were seen individually at sick call every morning, to which they appeared before having voided and at which time the amount of discharge and the appearance of a two glass urine was recorded. Routine prostatic smears and cultures were taken on the third day following the administration of the drug. Patients were declared clinically well only when the urethra was perfectly dry as seen before the first morning voiding, a point which was felt is rather important for, as is shown in table 3, there is a considerable number of cases which, after an initial injection of the drug, will be bacteriologically well, will show clinically a dry urethra or will have only a small morning tear and, yet, in whom a relapse back to a heavy discharge with positive bacteriology frequently will take place. These patients, if seen after voiding or at a later period during the day, easily may erroneously be considered as clinically cured.

A bacteriologic cure, as recorded in this series, is predicated on a dry urethra in whom prostatic smears and cultures are negative. All the clinically and bacteriologically well patients were held at least five days after culture before being discharged from the hospital for earlier experience had shown that in spite of almost invariable early apparent clinical and bacteriologic cure, a certain number relapsed during this period (table 3). The cases who were not clinically and bacteriologically well on the third day were given a second course of penicillin, usually consisting of 200,000 units. Subsequent additional required penicillin was ad-

ministered also in courses of one or two hundred thousand units each.

RESULTS

The accompanying chart is offered to show the number treated, the successes and the failures with the various total amounts of the drug given.

Table 1. *261 Penicillin Treated Cases With the Results Obtained*

Penicillin	How Given	Number Treated	Successes	Failures	To be re-treated	Per Cent of Cures	Average Hosp. Days
100,000	IM	261	164	67	67	74.32	11.8
200,000	IM	67	21	46	46	8.04	14.6
300,000	IM	46	21	25	25	8.04	23.4
400,000	IM	25	12	13	13	4.59	30.2
500,000	IM	13	8	5	5	3.06	41.3
600,000	IM	5	3	2	2	1.14	84.3
700,000	IM	2	0	2	1	0.76	90.0
1,300,000	IM	1	0	1	0	0.76	131.0

Each succeeding group in the column listed as "Number Treated" represents the Failures from the group immediately above, which were retreated with additional penicillin. The unt dosage listed for each corresponding group does not represent the size of the retreatment dose but rather the total dosage of the drug that has been received up to that time. All cases receiving 500,000 or more units of the drug (13 or 5 per cent) are considered as penicillin failures.

It is seen that 74.3 per cent of the entire group responded favorably to 100,000 units of the drug. An additional 100,000 units added 8 per cent more cures for a total of 82.3 per cent and, by the time 400,000 units had been reached, total cures were elevated to 94.97 or essentially 95 per cent.

Although it is not so demonstrated on the chart, inclination was to consider all of the cases (13 or 5 per cent) receiving more than 400,000 units of the drug as penicillin failures. True enough, eleven of these subsequently recovered but by the time this stage in the therapy had been reached interest in getting the patient well had become greater than in keeping the records intact and, as a result, almost every subsidiary type of treatment that was thought to have any curative value at all was drawn into play. All of these thirteen in addition to receiving more penicillin, which is recorded, had at least one course of five days of sulfadiazine, all had prostatic massage, seven had protargol injections, two had sounds passed, four had penicillin locally and, finally, six of them had one or more courses of hyperthermia. Two, incidentally, were never cured.

Table 2 is presented to show the relative effectiveness of penicillin in new and untreated cases as compared to chronic cases in which other therapy including at least one course of the sulfa drugs had been employed.

Table 2. *Analysis of Penicillin Cures on the Basis of Age and Chronicity of the Lesion*

194 Cases Cured by 100,000 Units of Penicillin		67 Cases in which cures were not obtained by 100,000 Units	
New Cases	Old Cases	New Cases	Old Cases
55—28%	139—72%	19—27%	48—73%

The term, "New Cases," as employed here represents that group in whom gonorrhea had been present from one to seven days and had been subjected to no previous treatment. Grouped under the heading of old cases are those in whom the infection had existed for from ten days to three years, all of whom had been previously treated. In the 194 cases cured by 100,000 units, 28 per cent were new and 72 per cent old, while in the 67 cases not cured by 100,000 units, 27 per cent were new and 73 per cent were old. (All these 67 were retreated as shown in table 1.)

The results here are almost identical and prove beyond question that the chronicity of the lesion has nothing to do with its response to penicillin.

Table 3 shows the characteristic response of the urethral discharge to 100,000 units of penicillin.

In summarizing these data it becomes evident that out of one hundred and thirty-two approximately 50 per cent of the cases treated will show a dry urethra twenty-four hours after treatment. In this group, eight had subsequent positive cultures requiring retreatment and sixteen underwent a definite relapse reverting back to a heavy discharge and positive bacteriology.

Table 3. *Urethral Discharge After 100,000 Units of Penicillin*

194 cases cured by 100,000 Units.	108 cases had no discharge twenty-four hours after treatment. Urethra remained dry.
	86 cases retained a mucoid morning tear from one to 6 days then became dry.
67 cases in whom 100,000 Units did not effect a cure.	12 cases retained a heavy discharge with positive bacteriology.
	8 cases were dry but prostatic cultures were positive.
	16 cases were dry for from three to twenty-one days with negative prostatic smears and cultures. All relapsed to a heavy discharge and positive bacteriology.
	31 cases retained a morning tear. Third day smears and cultures were negative. Subsequently, the discharge became more profuse and the bacteriology became positive.

In the remaining 50 per cent, those in whom the discharge was not immediately controlled, only a few (twelve cases) retained a heavy discharge after the initial treatment and it was only in this group that the third day cultures were positive. Of the remaining, one hundred and seventeen who retained a morning tear, eighty-six cleared up without further treatment within from three to seven days but in the remaining thirty-one, the discharge gradually became more profuse, the bacteriology again became positive and retreatment was required.

It is the opinion that in a series set-up for statistical analysis, some special emphasis should be accorded to two groups here; first, the sixteen cases, 6.1 per cent, who, to all clinical and bacteriologic study, were completely well and yet in whom defi-

nite relapse did take place; and, second, the thirty-one cases, 11.8 per cent, who were bacteriologically cured on the third day, showed only a slight morning tear but who also relapsed. Had the first group not been retained for a period of observation after the criterion of cure had been met, and had the second group not been examined before the morning voiding, they might easily erroneously have been considered as cured, in which instance the percentage cures for 100,000 would have been 92.2 per cent instead of 74.3 per cent which was actually obtained. On the basis of this evidence the folly of generalized opinion as to the effectiveness of the drug, based on early cultures and without sufficient follow up periods of study, is demonstrated.

PENICILLIN IN GONORRHEAL COMPLICATIONS

Epididymitis.—In this series there were ten cases of epididymitis representing an incidence of 3.8 per cent.

Table 4. *Epididymitis and its Response to Penicillin*

Case No.	Previous Treatment	Duration of the Gonorrhea	Duration of the Epididymitis	Associated Urethral Discharge	Amount of Penicillin	Discharge After Penicillin	Clinical effect of Penicillin on the Epididymitis	Hospital Days
1	Sulfa	30 days	7	+	200,000	±	None	27
2	Sulfa	34 days	4	+++	100,000	0	None	8
3	Sulfa	29 days	2	++	100,000	0	None	16
4	Sulfa	14 days	4	±	100,000	0	None	10
5	Sulfa	42 days	4	±	100,000	0	None	21
6	Sulfa	14 days	1	++	100,000	0	None	8
7	Sulfa	10 days	Developed while receiving Penicillin	+++	100,000	0	None	11
8	None	3 days	1	++	100,000	0	None	10
9	None	2 days	1	++	100,000	0	None	10
10	None	1 day	Developed 13 hours after getting Penicillin	+++	300,000	0	None	32

The first seven of these cases occurred in old infections (ten to thirty-four days) that had not responded to or were under active treatment with sulfa drugs at the time of the development of the complication. In this seven, epididymitis at the time of the penicillin treatment was anywhere from one to seven days old.

Case number 7 is of particular interest for, as is indicated, the epididymitis developed during the day on which the patient was receiving penicillin. In all of these patients with the exception of case number 1, the associated urethral discharge was both clinically and bacteriologically controlled by 100,000 units of penicillin. In case number 1, the discharge disappeared except for a morning tear but when prostatic cultures were positive on the third day an additional course of 100,000 units was given five days after the first. In not a single instance were we able to detect any appreciable startling change in the appearance of the epididymitis or in the control of its associated pain. All of the inflammations gradually resolved but apparently no faster than one would expect from elevation and ice, which they all had in addition to their penicillin therapy. Their average hospital stay was 14.4 days but, if computed from the day of onset of the disease, the average duration of the active inflammation was eighteen days.

Three of the total number of epididymal infections occurred in new cases (one to four days) who had received no previous therapy. In this new group also the discharge was controlled adequately by 100,000 units of penicillin. Case number 10 is of special interest for the epididymitis here (the only bilateral infection in the series) developed eighteen hours after the conclusion of his penicillin therapy. At that time his discharge, which had been profuse, was controlled completely. On the assumption that perhaps larger doses of penicillin may be more effective, this patient was given an additional 200,000 units but no change was perceptable in his epididymitis and he was in acute pain for four more days. All of these three infections gradually subsided, the latter one requiring thirty-two days.

Arthritis.—In this series there occurred only two instances of gonorrheal rheumatism representing a percentage incidence of 0.66. Reports of these cases follow in detail.

REPORT ON CASES

Case 1. In this case the arthritis developed sixty days after the onset of the gonorrhea for which the patient had been treated with two ten-day courses of sulfathiazole, one course of sulfadiazine and was, at the time of his complication, receiving protargol injections per urethra. He had a two plus discharge at the time the arthritis developed and smears were positive for gonococci. He was received in the hospital two days following the onset of his arthritis which had occurred in both wrists. The joints were markedly edematous, extremely tender and the skin was red. No attempt was made to remove joint fluid for culture. He was given 600,000 units of penicillin intermuscularly in doses of three days. From this, no appreciable effect could be noted either in the appearance of the joints or in the severity of his pain. He was given, in addition, salicylates and codeine for the first two and one half weeks, the joints were immobilized on light splints and dry heat was applied. Later, hot whirlpool baths were substituted as the inflammation subsided. Throughout the course of the acute involvement his electrocardiogram remained normal and there was at no time roentgen

ray evidence of bony change. Forty-five days after the onset of his wrist involvement his right knee suddenly became acutely inflamed and tender. On the third day 100 cc. of straw colored fluid was aspirated and 25,000 units of penicillin instilled. The aspirated fluid showed no growth on culture. Two days after the initial aspiration a needle was again inserted and 60 cc. obtained. By the end of another two days, all the acute inflammation and pain had subsided. The knee retained a slight perceptible swelling for two and a half more weeks at which time the patient was discharged from the hospital after a stay of one hundred days.

Case 2. This patient contracted gonorrhea and came directly to the hospital where he received 300,000 units of penicillin before his urethral symptoms were controlled. He was discharged as cured and returned to his ship but thirty hours later was forced to reenter the hospital because of an acute inflammation of his left knee. Penicillin was started immediately and continued until a total of 400,000 units had been given. The inflammation and pain grew gradually more acute, fluctuation appeared and on the sixth day multiple incisions were made evacuating large quantities of thick pus, which, apparently originating in the bursae, had spread to the soft tissues above the knee. On culture, only a staphylococcus was retrieved. The patient had a stormy convalescence but finally the inflammation gradually began to subside. Three months later the patient is still in the hospital where he is ambulatory on a cane.

That this case was of true gonorrhea origin is subject to question for if one is ever to retrieve the organism in periarthritis or in the true arthritic state, it is certainly much more likely to be done early in the suppurative type of involvement. As I have said, only a staphlycoccus was found but the history and the clinical findings certainly were typical.

In any event in neither of these cases was there any demonstrable benefit derived from penicillin except in the one joint in which 25,000 units was injected directly. It has been the author's privilege to see three other cases of gonorrheal rheumatism in which doses of penicillin ranging from 60 to 280,000 units were used. In none of these three cases was there any demonstrable improvement in the joint lesion.

Periurethral Abscess.—In the series there was one case of periurethral abscess originating in a case of gonorrhea that had been under sporadic treatment for a period of two years. The abscess was located on the ventral surface of the penis just proximal to the glans and at the time of the patient's admission to the hospital it had pointed and opened and was discharging large quantities of pus. There was an associated four plus urethral discharge. One hundred thousand units of penicillin together with hot sitz baths controlled the discharge from both the urethra and the abscess, the cavity of which was later shown by metheylene blue injections to connect with the urethra. Fourteen days after admission, after the inflammation had subsided, the resulting fistulous tract was resected in combination with a circumcision and healing was prompt.

Prostatitis.—There were no true prostatic abscesses encountered in the series but chronic prostatitis as evidenced by a cloudy second glass and by abnormal amounts of white blood cells in the prostatic secretion was present in many instances, particularly in the group of old, chronic, so called, sulfa-fast cases. The presence of this posterior involvement (table 2) apparently did not affect the percentage of cure. The discharge disappeared, the second glass became clear and the prostatic smears and cultures were negative in practically the same time and in the same percentage as in the new and anterior infections. However, it is of some significance that the abnormal amounts of white blood cells in the prostatic secretion when viewed wet on a counting chamber, although showing some definite decrease in almost every case, seldom if ever returned to normal limits. Because it was impossible to hold these cases for long periods of hospitalization, and because subsequent follow-ups are next to impossible in a group of Navy personnel, I hesitate from these statistics to form any conclusion as to what this residual prostatitis means. Before the situation can be evaluated truly it is deserving of more study, and this study must be done in a series of cases that can be controlled and followed for a long period of time, a situation which is not possible in the armed forces.

LOCAL ADMINISTRATION OF PENICILLIN

Because of the rather indifferent results obtained with penicillin in gonorrheal complications as compared to its effect on the urethral manifestations of the disease and because of the rather encouraging experience in the one case in which penicillin was injected directly into a gonorrheal joint, it was wondered if the efficacy of the drug was not more dependent on its direct contact with the lesion, as it was being excreted in the urine, than upon its blood concentration. If this were true, penicillin administration per urethral injection should be equally as effective in controlling the anterior type of infection as the intermuscular route had been.

All previous evidence had indicated that penicillin, even in high concentrations, exerted no irritating effect on a mucous surface and so the problem of determining a dosage concentration had to do only with equalling or exceeding the concentrations attained in the urine in the cases receiving 100,000 units of the drug over an eight hour period. Arbitrarily, therefore, the solution was prepared in such a way that each cubic centimeter contained 1,000 units. Four cc. of this mixture was injected with an asepto syringe and was retained in the urethra for fifteen minutes. This procedure was repeated at two hour intervals until a total of 100,000 units had been given, which required a period of fifty hours. Twenty cases were so treated.

Table 5. *Penicillin Administered by Urethral Instillation*

14 new cases—1 to 4 days old. No previous treatment.		6 old cases (10 days to 7 months old), all had received sulfathiazole or sulfadiazine or both.	
Cures	Failures	Cures	Failures
3—21%	11—79%	2—33%	4—66%

It is not completely logical to compare these percentages with those in table 1, for obviously one could expect no cure from this method of therapy if a posterior infection were present, which was the case in one of the above new cases and two of the six old cases treated. Removing these from consideration, however, the percentage of cure is far below that obtained by the intermuscular route.

It is of interest that every case so treated showed some improvement. In several, the discharge disappeared completely only to return in from twenty-four to thirty-six hours with positive bacteriology demonstrable at that time. All of the eleven failures in group 1 were eventually cured with 100,000 units of intermuscular penicillin except one who required 200,000 units to effect a cure. In the six old cases treated, it is of interest that one of the cured cases had existed for seven months before this treatment was instituted.

Local penicillin was also used in a few cases (11) in which intermuscular penicillin had not produced a cure. No cures by this method were effected, however, in any of the cases that previously had received more than 300,000 units of the drug by the intermuscular route.

CONCLUSIONS

1. One hundred thousand units of penicillin administrated by this technic is productive of cures in 74.3 per cent of cases. This percentage of cures may be increased to 95 per cent by the administration of additional penicillin.

2. Five per cent of the cases treated did not respond to 400,000 units of the drug. Subsequent cures in some of these, when additional penicillin had been given, are discounted on the basis that all of them had received one or more supplementary types of therapy.

3. The effectiveness of penicillin is not dependent on the age or chronicity of the lesion.

4. Six and one tenth per cent of the total cases treated will, after a demonstrated clinical and bacteriologically cure, undergo a relapse within the first ten days.

5. Another 11.9 per cent of the total cases treated will show a primary reduction of the discharge to only a morning tear with negative prostatic cultures and also undergo a relapse back to an active status.

6. Penicillin exerts no demonstrable effect on acute epididymitis.

7. Penicillin given intermuscularly produced no demonstrable improvement in two cases of gonorrheal rheumatism. Direct administration of 25,000 units of the drug in an acute knee quickly controlled the acute inflammatory manifestations.

8. Because of the incomplete follow-up study in the series, opinion is withheld as to the effect of penicillin in chronic prostatitis.

9. Penicillin administered locally will cure some cases of anterior gonorrheal urethritis but is less effective than by the intermuscular route.

NOTE. Since these statistics were compiled, sixty consecutive cases have been treated with calcium penicillin administered 20,000 units every three hours until a total of 100,000 had been given. The series is still too small to justify any conclusions being drawn but it appears that the number of cases requiring retreatment under this regime is appreciably smaller than the series reported.

THE DIAGNOSIS OF THROMBO-ANGIITIS OBLITERANS AND PERIPHERAL ARTERIOSCLEROSIS

PAUL S. LOWENSTEIN, M.D.
ST. LOUIS

Of the common occlusive arterial diseases, thrombo-angiitis obliterans and arteriosclerosis have been selected for discussion not only because of their frequent occurrence but, also, because an increase in the knowledge regarding them may emphasize certain significant factors common to many other peripheral circulatory disorders.

THROMBO-ANGIITIS OBLITERANS (BUERGER)

Thrombo-angiitis obliterans is a disease of unknown etiology, affecting males almost exclusively and usually in a younger age group (from 15 to 45). It generally is ushered in by spontaneous intermittent claudication and often by severe pain. The claudication is best described as a "cramping" sensation and manifests itself in the muscles of the calf, under the knee, in the ankle or the arch of the foot. At times the patient may complain of excessive fatigue in the limb on exercise.

The pain in thrombo-angiitis obliterans is fairly constant in its location in an individual but varies greatly in its itensity. When extreme, it is often difficult to relieve by opiates; the patient sits up holding and rubbing the painful limb or allows it to hang over the side of the bed. Sudden occlusion of a peripheral artery, which occurs in a smaller group of patients, is usually indicated by severe pain in the foot, marked pallor and coldness. The pain may subside within several days and the pallor give way to rubor and cyanosis with the subsequent development of the more typical syndrome of intermittent claudication. When one finds a sudden, unexplained occlusion of a peripheral artery in a young adult male, a tentative diagnosis of thrombo-angiitis obliterans is justified.

Many patients first present themselves with one or more zones of necrosis on the toes, feet or fingers. These may become manifest as exceedingly painful, slowly-healing ulcers or as frank areas of

* From the Department of Surgery, Jewish Hospital, and St. Louis University.

more or less well demarcated gangrene. Frequently the immediately inciting cause is a neglected fungus infection, an infected ingrown toenail, frostbite or the occurrence of trauma to the part. In industry the latter may assume medicolegal significance.

It should be kept in mind that thrombo-angiitis obliterans is a disease in which veins as well as arteries are involved. This serves as one point of differentation from arteriosclerosis in which the pathologic process is limited to the arteries. Migrating phlebitis, which occurs in about 40 per cent of the cases of thrombo-angiitis obliterans, according to Samuels, is a characteristic feature of the disease and differs from the ordinary bland phlebitis (termed phlebothrombosis by Ochsner) in that there is no general and but little local reaction. After persisting for a few weeks it subsides leaving in its wake a slight brownish pigmentation or discoloration of the skin. There may be but one attack or many recurrences, sometimes antedating other evidence of the disease such as claudication or arterial occlusion by months or years.

An interesting and striking feature of this disease is its association with excessive cigarette smoking. Rarely is the patient addicted to marked use of tobacco in any other form. At one time tobacco was thought to be the etiologic agent and some writers have stated that they have never seen a case of thrombo-angiitis obliterans in a non-smoker. However, both of these views have since been discounted and a small percentage of well authenticated cases have been described in persons who have never used tobacco in any form.

As I have observed in a previous article, the diagnosis depends more upon a careful examination by a physician who is conscious of the frequency of peripheral vascular diseases than upon the employment of elaborate instrumental methods. The history is of extreme importance and the recital of excessive weakness in an extremity, pain on exertion relieved by rest and the reappearance of the pain upon further effort immediately should direct suspicion to the peripheral circulation. The presence of these symptoms or of coldness and pallor of the limb or a thrombo phlebitis unexplainable on some other basis is extremely suggestive, particularly when occuring in a young adult male, possibly of Jewish descent, and the consumer of tobacco in excessive amounts. It is essential that the disease be recognized—as it usually can—at an early stage if serious and ofttimes irremediable damage to the limb is to be prevented.

In examining a patient with peripheral vascular disease, it is important that the limbs be viewed in a good light, preferably daylight, so that variations from the normal color may be detected readily. The presence of edema or other swelling, trophic changes such as glossy or fissured skin, corns and callouses, irregular, ridged or poorly developed nails, should command attention. The red, tender, linear markings along the course of inflamed superficial veins or the more localized cutaneous nodosities are of much significance, and the early and repeated appearance of a migrating phlebitis in thrombo-angiitis obliterans has already been alluded to. The diagnosis of "thrombophlebitis" without an attempt at finding the underlying cause is responsible for unnecessary delay in prosecuting treatment in this disease.

The temperature of the affected limb should be noted and compared with the opposite extremity. Any difference on the two sides as well as zones of sudden change should direct attention to possible circulatory involvement. One of the commonest findings in thrombo-angiitis obliterans is a drop in the temperature of the acral part which, in the case of sudden arterial occlusion, may be strikingly cold. These temperature changes may be registered by means of the skin thermometer or the electric thermocouple but, for practical purposes, the hand of the examiner can detect with sufficient accuracy any significant variation.

In the examination of the extremities at least four arterial pulsations should be sought for, namely, the femoral, popliteal, dorsalis pedis and posterior tibial in the lower limb; the axillary, brachial, radial and ulnar in the upper. The presence or absence of these pulsations is one of the most valuable signs in the detection of peripheral vascular disease and a careful study frequently will reveal closure of one or more of the peripheral vessels in the early stages of thrombo-angiitis obliterans, some times long before subjective symptoms direct the patient's attention to the limb. For further study and gradation of these arteries I have found the oscillometer of much value in obtaining a graphic and objective picture which is frequently exceedingly helpful in evaluating the prognosis for the limb as well as for comparison of subsequent progress.

The effects of posture on the appearance of the extremity, the presence or absence of pallor on elevation and the degree and angle of blanching (the angle of circulatory sufficiency described by Buerger) deserve careful study. The presence of rubor or cyanosis in the dependant position characteristically is found in thrombo-angiitis obliterans although also in certain other affections with closure of the larger arteries. It is due to the reduced circulation secondary to vascular obstruction with a compensatory dilatation of the capillaries.

ARTERIOSCLEROSIS

In contrast to thrombo-angiitis obliterans, arteriosclerosis is essentially a disease of older people, probably related to some change in cholesterol metabolism and, in its severer forms, to an intensification of the natural aging process of the body. In those cases associated with diabetes mellitus, the arterial changes appear earlier and are usually more severe (Samuels). Many of these patients

show calcification of the peripheral vessels, particularly in the lower extremities, but the presence of calcification in the absence of arterial occlusion cannot be considered abnormal. The essential process that produces symptoms of arterial insufficiency is occlusion and not the presence or absence of calcification.

In the diagnosis of arteriosclerosis the history is important and it is essential to evaluate carefully the patient's complaints as many cases may otherwise be attributed erroneously to flat feet, arthritis, rheumatism and the like. But the symptoms alone merely indicate the necessity for a careful study of the peripheral circulation and in many instances may not vary greatly from those of thrombo-angiitis obliterans. Nevertheless, differentiation is desirable and an early diagnosis may be of inestimable value in maintaining the integrity of the limb, whereas, if it is delayed, the opportunity of saving the extremity may be lost.

Among the common early symptoms in arteriosclerosis are vague disturbances of sensation in the feet and toes. These may be of a mild tingling nature, a loss of sense to mild touch or many other bizarre and sometimes inexplicable complaints. Frequently they may be accompanied or followed by subjective coldness, more often at an early stage in one or more toes, later in the foot or entire leg. Often, too, the patient notes fatigue in the limb upon walking his usual distance and, indeed, the extent of exercise may be curtailed markedly by the onset of pain in the foot or, more likely, in the calf of the leg, so-called intermittent claudication. The appearance of pain on exertion is variable in different patients but remarkably constant for the individual so that, for example, he may be able to walk just one block before he is compelled to rest, whereupon he may again be able to walk another block. Pain at rest is less common than claudication and usually occur at a more advanced stage of the disease. It may be lancinating or continuous, is commonly of great severity and completely demoralizing to the unfortunate victim, interfering with sleep and compelling him to get up and walk the floor at night. It may be a precursor of the onset of gangrene and in this group, therefore, of grave prognostic import.

Examination of the extremities, even in early examples of arteriosclerosis, usually will reveal certain characteristic findings of deficient arterial flow. Almost always will be found a diminished angle of circulatory sufficiency as manifested by pallor of the plantar aspect of the toes and feet on elevation of the limb. In practice I have found this of much more value in estimating the vascular status than the presence or absence of pedal pulses. Thus pallor on slight elevation may suggest a state of considerable arterial occlusion despite pulsating vessels in the foot, whereas, conversely, the absence of plantar ischemia indicates adequate collateral circulation even though no pedal pulses are palpable. It therefore again should be emphasized that the examining physician must not be contented upon merely examining the state of the pulses in the extremity. In the early stages of obliterating arteriosclerosis, rubor of the toes and feet in the dependant position is seldom present. It may be found in more advanced states although much less commonly than in thrombo-angiitis obliterans and is of relatively little diagnostic value as compared with plantar ischemia.

A diminution in the temperature of toes, feet or limbs is a common finding in arteriosclerosis and, as pointed out previously, usually is associated with impaired arterial flow and objective evidence of ischemia. In early cases the change may be limited to one or more digits but, as the disease progresses, the coldness is more extensive in extent and degree. It does not necessarily correspond with the zones of coldness complained of by the patient and, paradoxically, marked temperature changes may be present of which the patient is quite unaware.

With more advanced circulatory involvement cyanosis may be observed and the more extensive its area, the more ominous the prognosis. Particularly is this true when other evidence of ischemia is present, the signs being a frequent forerunner of gangrene. On the other hand edema is usually less common, unless of cardiac or renal origin. When present it may be due to the limb being maintained for long periods in a dependant position, and usually disappears when the horizontal posture is resumed.

Table 1. *Differential Diagnosis*

	Thrombo-angiitis Obliterans	*Arteriosclerosis*
Age	Chiefly between 30 and 50 years, average 42 years.	Chiefly after midlife.
Sex	Males about 98 per cent.	Males predominate. May be either sex.
Race	Jews about 28 per cent.	Any.
Rest pain	Often very severe.	Usually mild.
Intermittent claudication	Usually present.	Usually present.
General appearance	Often younger than age.	Often older than age.
Upper extremities	Frequently involved.	Seldom involved.
Postural changes	Rubor when dependant. Pallor on elevation.	Rubor when dependant less common. Pallor on elevation.
Edema	Frequent.	Uncommon.
Arteries	Pulseless or of diminished volume. Coronary sclerosis rare.	Pulseless or of diminished volume. Coronary sclerosis frequent.
Veins	Frequently involved. Often migrating phlebitis.	Rarely involved.
Roentgenograms of vessels	Usually negative. Aorta normal.	Frequently calcification of vessels. Possibly elongation of aorta.

Trophic changes are encountered frequently, increasing in severity as the circulatory status becomes more compromised. They vary from loss of the normal texture of the skin and nails to an extreme atrophy affecting not only the soft parts but even the bones. Ulcers of the toes or lower legs often present themselves and at times, possibly associated with fungus infections, involve plantar callouses.

In recent years a great many studies have increased vastly the knowledge of the physiology and diseases of the peripheral circulation. Patients with vascular disturbances of the extremities usually first consult the general practitioner and it is his early recognition of the pathologic state that offers the best opportunity for arresting the disorder before irremediable damage to the limb has ensued.

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W. BARRY WOOD, JR., M. D., and ROBERT A. MOORE, M. D., Editors

CASE 66

PRESENTATION OF CASE

A 53 year old white male entered Barnes Hospital on September 17 and died September 21, 1944.

Chief Complaint.—Extensive paralysis.

Family History.—The patient's mother died at 63 from liver disease, his father died at 70 from heart failure and one brother had diabetes.

Past History.—The patient's general health had, with few exceptions, always been good. Four years previous to admission he was treated at a trachoma clinic with apparently good results. Two years later he had some digestive disturbance associated with constipation and flatulence; and with diarrhea after taking certain foods. He received hypodermic injections for low blood pressure for some months before admission. The patient had always been obese and weighed about 200 pounds. He had worked for years as a miner. He used no alcohol or tobacco.

Present Illness.—About one year previously the patient fractured his right forearm and since then he had occasional dull pain in the right hand which became slightly weak. During this period he had occasional numbness and tingling senations in the left hand and forearm at night. On September 1, he developed dryness in the throat but no other signs of respiratory infection were apparent. On September 8, numbness of both feet appeared. This was soon followed by weakness which progressively involved the legs and arms and, finally, he had difficulty in coughing, swallowing and chewing. Shortly after onset, sugar in the urine was discovered and thereafter he received 15 units of regular insulin whenever the urine became yellow on testing it.

Physical Examination.—Temperature was 36.8 C., pulse 120, respirations 20, blood pressure 150/110. The patient was obese. He was lying flat in bed, motionless and perspiring profusely. He appeared rational but was unable to speak distinctly. There was no apparent respiratory distress. The eyelids did not close completely. There was a small amount of fibrous tissue medial to the left corneal limbus. The pupils reacted normally. The extra-ocular muscles were intact. The fundi appeared normal. The tonsils were red but not enlarged and the pharynx was hyperemic. The heart and lungs showed no abnormalities. The abdomen was protuberant but soft. No organs or masses were felt. The prostate was normal. The neurologic findings were as follow: There was bilateral facial diplegia (infranuclear) with lagophthalmos. Movement of the neck was somewhat limited. There was apparent difficulty in talking, swallowing and coughing. (The tongue protruded in the midline and the palate showed no weakness.) Respirations were largely thoracic in type. The extremities were completely paralyzed excepting slight movement of the left wrist and of the fingers of each hand. Diminished sensations to light touch and pin prick was noted over the entire skin, especially on the feet. The corneal, gag, abdominal, cremasteric, rectal sphincter and all tendon reflexes were absent excepting slight bilateral radials. There were no pathologic toe signs.

Laboratory Findings.—Blood count: red cells 5,630,000, hemoglobin 17.5 gms., differential white cell count: eosinophils 1 per cent, stab forms 11 per cent, segmented forms 53 per cent, lymphocytes 24 per cent, monocytes 11 per cent. Urinalysis: albumin, slight trace, sugar negative. Blood Kahn test was negative. Blood sugar (fasting) 137 mgs. per cent, (2½ hour specimen) 167 mgs. per cent. Nonprotein nitrogen was 28 mgs. per cent. Lumbar puncture: initial pressure 180 mm. H_20; with jugular pressure 250 mm. H_20; prompt rise and fall. Spinal fluid clear, 12 cells (with acid), 9 mononuclears, 3 polymorphonuclears; protein 170 mgs. per cent, sugar 129 mgs. per cent, Wassermann negative, colloidal gold curve 5555422100.

Course in Hospital.—The temperature remained normal or slightly elevated but the pulse rate was



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continually between 110 and 140. The patient could swallow small amounts of liquids. These were supplemented by parenteral glucose in saline solution and vitamins B and C. The patient's condition remained unchanged except for a slight improvement in swallowing and in movements of the hand. On the fifth day he suddenly stopped breathing and failed to respond to respiratory and cardiac stimulants.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This patient evidently had a widespread involvement of the peripheral nerves. Before we discuss this patient, let us clarify our ideas somewhat on the general subject of peripheral or polyneuritis. Dr. Jones, does the term "polyneuritis" connote to you a definite entity?

DR. A. B. JONES: Yes. Polyneuritis is a neurologic condition which, in the main, involves the peripheral nerves. It is a progressive widespead degenerative condition, more or less symmetrically distributed. It is caused by a toxin, or some chemical substance such as alcohol.

DR. ALEXANDER: Why do you use the suffix "-itis"? Is it an inflammation or degeneration of the nerves?

DR. JONES: I do not know.

DR. ALEXANDER: Dr. Spies, in beriberi is there an acute inflammation of the peripheral nerves?

DR. THOMAS SPIES: Sometimes there is a true inflammation but in most cases there is only degeneration. I think it usually should be called a neuropathy rather than a peripheral neuritis. However, long usage of the term peripheral neuritis makes it difficult to judge a diagnosis as incorrect.

DR. ALEXANDER: Of course, any term is valid as long as one has a definite idea of the nature of the lesion. In diabetes, as well as in the avitaminoses, I believe the essential change is a degenerative process. Dr. Moore, is that correct?

DR. ROBERT MOORE: Yes. The nature of the lesion in terms of general pathology is degenerative. It is not an inflammation.

DR. ALEXANDER: Are there types of polyneuritis in which inflammation is prominent?

DR. ROBERT A. MOORE: There are true neuritides with exudation of cells and fluid into the nerves.

DR. ALEXANDER: Are you satisfied with the term "polyneuritis" for all the various conditions of the peripheral nerves?

DR. ROBERT A. MOORE: No, I think the terminology should be changed.

DR. ALEXANDER: Dr. Levy, what do you think bout considering polyneuritis as an entity?

DR. IRWIN LEVY: I think we observe a clinical picture which is somewhat similar in various patients in spite of different causes. In most cases it is degenerative rather than inflammatory. It is really the reaction to various noxious agents.

DR. ALEXANDER: Is the pathologic change in all polyneuritides the same? Could one identify anatomically the polyneuritis of avitaminosis, the polyneuritis of diphtheria and the polyneuritis of metal poisoning?

DR. LEVY: I think it would be difficult to differentiate.

DR. ROBERT A. MOORE: Yes, it would be most difficult by examination of tissues alone.

DR. ALEXANDER: We may conclude then that the term polyneuritis is used to designate a clinical syndrome of which there are many causes. Further, it is admitted that it is usually not a true inflammatory process. Dr. Jones, how can the term neuronitis be distinguished from polyneuritis?

DR. JONES: The late Dr. Mills first used the term neuronitis. The term "infectious" was coined by Dr. Foster Kennedy in 1919 in describing a group of patients with symptoms not previously recognized as belonging to a clinical entity. The symptoms appear from a few days to a month after some infection, often a respiratory infection. The condition is more acute than the ordinary polyneuritides (seen in alcoholics after starvation and in the avitaminoses), is more fulminating and the pathologic changes are different.

DR. ALEXANDER: Is Jamaica ginger paralysis a peripheral neuritis or a neuronitis?

DR. JONES: It is not a polyneuritis according to the usual interpretation of the word—it involves only certain portions of the body.

DR. ALEXANDER: Then it is a fact that one either has polyneuritis or infectious neuronitis. When we speak of neuronitis, do we imply infectious neuronitis?

DR. JONES: To me, polyneuritis means involvement of the peripheral nervous system by some noxious agent or lack of vitamins but infectious neuronitis is a condition that comes on after some infectious illness, such as a respiratory disease or a gastrointestinal upset.

DR. ALEXANDER: Dr. Levy, is there a neuronitis that is not so-called infectious neuronitis?

DR. LEVY: There are about a half a dozen terms that have been applied to these ascending paralyses that are primarily motor—neuronitis is one, infectious polyneuritis is another, infectious radiculitis—but they all refer to the same type of clinical entity. although the cause may be different. In most neuritides there is some retrograde change in the nerve cells. Neuronitis is a condition of rather symmetrical ascending nature, predominately motor, even though pathologically there may be tract changes in the long sensory pathways. The clinical picture is predominantly motor and ascending in nature.

DR. ALEXANDER: It is clear that there are two conditions—polyneuritis and neuronitis and that they are reasonably distinct although in polyneuritis there may be late involvement of the neurone.

DR. LEVY: Infectious polyneuritis is the same as infectious neuronitis.

DR. ALEXANDER: Infectious polyneuritis is sometimes called infectious neuronitis, Guillain-Barre syndrome, Landry's syndrome. Is it your impression that the patient under discussion today had infectious neuronitis, Dr. Jones?

DR. JONES: The clinical picture fits into this classification but there are some items in the history which would make me question such a diagnosis.

DR. ALEXANDER: What are the characteristics of infectious polyneuritis?

DR. JONES: There are no specific characteristics. Infectious polyneuritis can begin suddenly four or five days after a cold or other respiratory infection. There is excruciating pain in the back, arms or extremities, followed in a few hours by weakness in the hands or arms or both and in the lower extremities. The paralysis, either ascending or nonascending, with involvement of the facial muscles, and with or without sensory changes, is characteristic.

DR. ALEXANDER: The history stated that a year previously the patient fractured his right arm: Following that he had some numbness and tingling of the hand and noticed weakness of that hand. May infectious polyneuritis come after a year or more?

DR. JONES: These symptoms were due to his fractured arm being in a cast for so long. They may be disregarded from the standpoint of infectious polyneuritis.

DR. ALEXANDER: Then it is correct that this disease has a sudden acute onset?

DR. JONES: Usually, but not always. Many of the examples of Guillain-Barre syndrome come on more gradually over a period of weeks rather than days.

DR. ALEXANDER: Do most cases have an increased protein in the spinal fluid?

DR. JONES: Guillain-Barre described a syndrome in which there were only a few cells and a moderately elevated protein content of the spinal fluid.

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DR. ALEXANDER: Is facial involvement usual, Dr. Levy?

DR. LEVY: It is fairly common in this type of syndrome.

DR. ALEXANDER: Is it usually unilateral or bilateral?

DR. LEVY: It is frequently bilateral.

DR. ALEXANDER: Are the other cranial nerves involved?

DR. LEVY: They are usually involved also.

DR. ALEXANDER: Dr. Jones, is it true that the disease may be distinguished pathologically?

DR. JONES: That has always been my impression.

DR. ALEXANDER: Dr. Levy, what is the distinction?

DR. LEVY: You might make the distinction on the distribution of the alterations rather than on the actual pathologic changes. I think it is difficult to make an accurate distinction.

DR. ALEXANDER: Dr. Jones, what is the mortality in this disease?

DR. JONES: I do not know the exact figures. The mortality rate is variable but as a general rule the prognosis is not too bad.

DR. ALEXANDER: Is recovery usually complete?

DR. JONES: That varies also. There are all sorts of residuals, such as spastic paraplegia, and persistent incontinence of urine, or recovery may be complete.

DR. ALEXANDER: Dr. Spies, do you agree with what has been said about the distinctive features of this condition and its relation to polyneuritis?

DR. SPIES: I do, in general. My colleague, Dr. Aring, who has interested himself in the disease, infectious neuronitis, pays a great deal of attention to the histopathologic changes. On the other hand he bases his diagnosis mostly on the clinical findings. For instance, in this case, the fingers were partially movable but the hands were immovable. Dr. Aring would make a diagnosis of infectious neuronitis and disregard the protein content of the spinal fluid. Every effort has been made to prove that this is a viral disease but without success to date. There are definite changes in the visceral organs.

DR. JOHN SMITH: Is the tissue of the medulla ever sufficiently irritated to cause excretion of sugar in the urine?

DR. ALEXANDER: Certainly the medulla and the entire nervous system may be involved. Will you distinguish this from so-called encephalomyelitis?

DR. JONES: It may well be that this case is one of disseminated encephalomyelitis, one of the demyelinating processes.

DR. B. Y. GLASSBERG: Dr. Alexander, it is my impression that hyperglycemia resulting from irritation in the region of the fourth ventricle is much more unusual than one would think from reading the experimental evidence.

DR. ALEXANDER: Dr. Levy, how frequently in neurologic disease, especially of the central nervous system, does one get glycosuria that can be attributed to a medullary lesion?

DR. LEVY: It is very rare.

DR. GLASSBERG: I think it is important to remember that approximately one sixth of the patients who present themselves with glycosuria do not have diabetes. Glycosuria occurring in a person with an infectious disease is not too uncommon. If those patients are followed until the infection has cleared they return to a normal glucose tolerance curve.

DR. ALEXANDER: What is your conception of that process?

DR. GLASSBERG: I suppose the pancreas is involved. There may be a certain amount of inflammatory reaction in the pancreas, just as there may be a degenerative change in the liver in any infectious disease. As a result of the inflammatory process the islands of Langerhans do not function normally.

DR. SMITH: I have seen mild glycosuria and hyper-

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glycemia a number of times following a cerebral vascular accident.

Dr. Harold A. Bulger: In chronic, slowly developing disease of the nervous system it is unusual but in acute cerebral hemorrhage it is relatively common for the patient to show a diabetic picture with glycosuria and transient hyperglycemia.

Dr. Alexander: It is agreed then that this is probably infectious polyneuronitis or neuronitis and that the protein content of the spinal fluid is too low to admit the diagnosis of Guillain-Barre syndrome.

ANATOMIC DIAGNOSIS

Polyradiculoneuritis (history of progressive weakness of the extremities followed by paralysis, thirteen days).

Degeneration of myelin in the roots of the spinal cord, slight.

Periarteritis, slight, involving the arterioles of the spinal cord, heart and adrenal glands.

Focal necrosis in the myocardium and in the adrenal cortex, slight.

Thrombi in the secondary and tertiary branches of the pulmonary arteries.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: The anatomic changes, as seen at the time of the autopsy were not conspicuous.

There was a slight degree of nephrosclerosis, slight to moderate arteriosclerosis and slight enlargement of the heart, which weighed 430 gms. There was an acute ulcer in the mucosa of the stomach 2 mms. in diameter. Throughout the secondary and tertiary branches of the pulmonary arteries there were small thrombi which had brought about rather effective occlusion of most of the terminal pulmonary arterial circulation. Congestion and edema of the lungs, focal atelectasis of the lower lobes of the lungs and petechiae and ecchymoses beneath the pleura of the right lung were also noted. The gross examination of the central nervous system showed no pathologic changes.

Microscopically, there was a definite degeneration of myelin in the nerve roots. There were also definite vascular lesions in the viscera, and foci of necrosis in the adrenal gland. In some sections of the heart muscle it appeared as though isolated mycardial fibers were undergoing necrosis. There was infiltration of lymphocytes in nerve roots of the lower part of the spinal cord, in the meninges with some hemorrhage and in the myocardium.

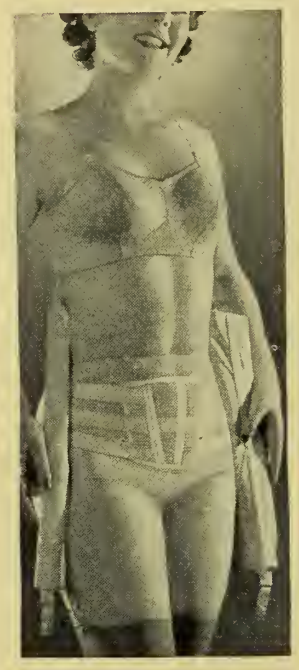
The diagnosis which we wish to propose to you is polyradiculoneuritis in the belief that that represents a more exact term than infectious neuronitis or polyneuritis.

In answer to some of the questions asked during the discussion: Neuronitis indicates that there is an inflammation of the neurone. There are negligible changes in the neurones of the spinal cord during the acute stage of polyradiculoneuritis. Our microscopic sections showed well preserved tigroid material in the nerve cells. There is no neuronophagia and necrosis and invasion of the nerve cells by polymorphonuclear leukocytes or lymphocytes. As far as I can see, on the basis of what I have read and my own observations, infectious neuronitis is not basically an inflammation of the neurones and I do not believe that the term "infectious neuronitis" is a desirable term. However, it is an inflammation, it is an -itis; it involves many structures of the peripheral nervous system; and it is strikingly an inflammation of the spinal roots and of the nerves. On that basis I believe the term "polyradiculoneuritis" most accurately describes what is going on in the tissues. It is not solely a disease of the central nervous system. It is a disease of many structures in the body with inflammation and necrosis of the wall of vascular structures, and an interstitial inflammation in many of the tissues. It just so happens that the clinical manisfestations are largely referred to changes that occur in the nervous system.

Can one establish this diagnosis? On the basis of what I have already said it might be presumed that I think it can be established, since I am willing to make

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this diagnosis without knowing anything about the history of the patient. The pathologic changes in the nerve roots, in the spinal cord, in the meninges and in the viscera are characteristic. If the pathologist is given all of the tissues including the viscera, and not just one tissue such as a peripheral nerve, he can draw a sharp distinction between polyradiculoneuritis and the polyneuritides which are associated with vitamin deficiency, or with poisoning from lead and other agents.

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BOOK REVIEW

TEXTBOOK OF GYNECOLOGY. By Emil Novak, M.D., F.A.C.S., Associate in Gynecology, The Johns Hopkins Medical School; Gynecologist, Bon Secours and St. Agnes Hospitals, Baltimore. Second Edition. Baltimore: Williams & Wilkins Company. 1944. Price $8.00

This is an enlargement and revision of the first edition published in 1941. Written by an experienced teacher, he stresses one of the neglected fields of gynecology; namely, pathology. Diagnosis and treatment are accented throughout the book. Embryology of the female generative organs are under one head; this feature is lacking in most books on gynecology. The endocrine phase of diseases of the female are brought up to date as well as the chapter on urologic conditions of the female.

While surgical technic is not stressed, the different procedures are discussed briefly.

The illustrations are excellent and the diagrams are very descriptive. E. L. D.

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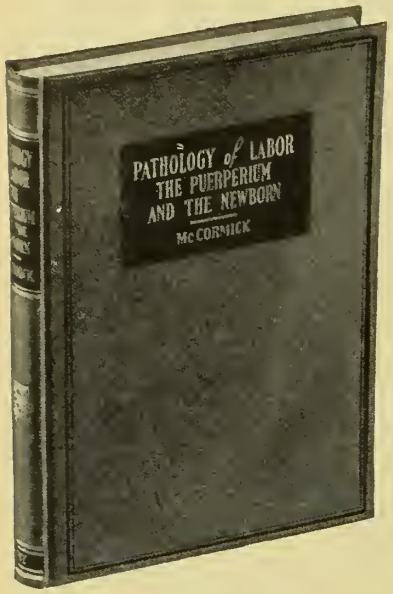
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MAY, 1945

EDITORIALS

THE COUNCIL

Dr. Arthur S. Bristow, Princeton, President-Elect of the Association, was installed as President at a meeting of the Council April 21 and 22. He succeeds Col. Curtis H. Lohr, St. Louis, now serving as commanding officer of the Seventieth General Hospital overseas and in whose place Dr. Robert Mueller, St. Louis, served as Acting President of the Association.

Since the Annual Session including the House of Delegates was canceled in compliance with the rulings of the Office of Defense Transportation, it was necessary that the Council transact some of the business of the House of Delegates. The Council attempted to take no more of the authority of the House of Delegates than it seemed necessary, basing what it has done on Article VI of the Constitution which states, "The Council shall have full authority and power of the House of Delegates between Annual Sessions, unless the House of Delegates shall be called into session as provided in the Constitution and By-Laws."

The principal problem facing the Council was that of election of officers. Article IX of the Constitution states, "All of the officers shall serve until their successors are elected and installed." Therefore, the Council decided that, no new officers having been elected, the present officers should serve until such time as the House of Delegates can elect new officers. The Council felt that this need not apply to Councilors but, again following the Constitution, the Councilors must be elected on the third morning of the Annual Session by those delegates present at the Session. Therefore, it was decided that Councilors should be considered as other officers and their terms continued. The Constitution provides that in the case of death or resignation of a Councilor, the Council may appoint a successor to serve until the vacancy is filled at the next Annual Session.

Committee chairmen have been asked to present any problems of their committees which cannot await action of the House of Delegates to be presented to the Council.

Curtailment of paper and, therefore, meager space in THE JOURNAL, has prompted the Committee on Publication to cease for the time being the publishing of full reports of the meetings of the Council. However, members will be kept informed either through the pages of THE JOURNAL or by mail of any major activities of the Council.

LOCATIONS OF RETURNING MEDICAL OFFICERS

Forty-seven per cent, or 9,649 medical officers, indicated that they wished to return to practice in their former communities after the war, Lt. Col. Harold C. Lueth, Medical Corps, Army of the United States, reported in the April 21 issue of *The Journal of the American Medical Association* in the presentation of an analysis of answers to questionnaires sent to 21,029 medical officers in the armed forces. More than 21 per cent, or 4,310 medical officers, signified that they did not intend to reengage in practice in their former communities. The study was made by the Committee on Postwar Medical Service of the American Medical Association in cooperation with the Surgeons General of the Army, Navy and the U. S. Public Health Service and Veterans Administration. The 21,029 questionnaires studied represent about 35 per cent of all medical officers on duty.

The Journal of the American Medical Association points out the problem in licensing that this will create. It also may have some bearing on the problem of physicians in rural areas, a problem which Missouri and many other states confront.

The article states, "The size of community of former medical practice of medical officers was studied. A little more than half the men (12,508) indicated the size of community in which they were engaged in practice before they entered military service. The remainder did not answer the question or were not in practice. Most of the men came from large cities. There were 4,943, or 39 per cent, of those who mentioned the size of community of previous practice who came from cities of more than 250,000 population. About 32 per cent, or 4,026 medical officers, came from cities of 25,000 to 250,000, and about 23 per cent, or 2,836 medical officers, came from communities of 2,500 to 25,000 population. Less than 6 per cent, or 703 medical officers, came from communities of less than 2,500 population. . . ."

The figures of the Postwar Planning Committee of the Missouri State Medical Association show that 71 per cent of physicians entering service went from practices in the two large cities. The number from the smaller metropolitan areas would increase this figure considerably.

NEWS NOTES

Dr. C. S. Grant, St. Joseph, has been appointed clinic physician for the St. Joseph Organization for Public Health Nursing to succeed Dr. E. M. Shores, St. Joseph, who resigned.

Dr. E. F. Hoctor, Farmington, was the guest speaker at a regular weekly meeting of the American War Dads of Flat River recently and spoke on the problem facing the returning veterans.

Drs. Claude J. Hunt and Carl B. Schutz, Kansas City, were guest speakers at Ft. Riley, Kansas, April 12. Dr. Hunt spoke on "Abdominal Surgery" and Dr. Schutz on "Treatment of Surgical Shock."

Dr. Wallis Smith, Springfield, has been elected president of the Springfield Chamber of Commerce for a second term.

Dr. C. L. Lawless, Marshall, has been appointed county coroner for Saline County.

Drs. J. V. Bell and L. P. Engel, Kansas City, were guest speakers at the Smoky Hill Army Air Base, Sa-

lina, Kansas, on April 12. Dr. Bell spoke on "Acute Respiratory Diseases" and Dr. Engle spoke on "General Surgery."

A lectureship in honor of the late Hanau W. Loeb, former Dean of St. Louis University School of Medicine, was presented to the school by the Alpha Pi Chapter of Phi Delta Epsilon at a dinner meeting on April 9.

Dr. J. S. Montgomery, Kansas City, spoke at Rosecrans Field, St. Joseph, on April 12, on the subject, "General Surgery."

Group Hospital Service, Inc., of St. Louis, was the recipient of an annual award made by the Hospital Council of St. Louis for outstanding service to hospitals during the year. The announcement was made at a dinner meeting on April 5.

MISSOURI DOCTORS IN SERVICE

Lt. Charles N. Mueller, St. Louis, landed with the Marines on Iwo on D-Day. Following six hours of administering first aid, he was struck by mortar shell fragments in the back. He is recovering at an army hospital.

The 21st General Hospital, commanded by Col. Lee D. Cady, St. Louis, recently received the hospital's 50,000th patient.

Col. B. J. Macauley, Poplar Bluff, led an ambulance unit behind enemy lines to help liberate the 513 allied prisoners on Luzon.

Comdr. Jerome I. Somon, St. Louis, has been appointed chief of surgery at the United States Naval Hospital at New Orleans.

Lt. Comdr. Ernest K. Robinson, Kansas City, has been awarded the Navy and Marine Corps medal for "unusual skill at the operating table" aboard an aircraft carrier in the Pacific on November 25. Presentation was at the U. S. Naval Receiving Hospital, San Francisco, where Commander Robinson is now located.

Major Royse Bohrer, West Plains, has been returned to this country because of a back injury.

Major Francis G. Weinel, Webster Groves, is commanding officer of a medical clearing company in the Netherlands East Indies which recently was cited for "outstanding performance of duty." The citation was made to the unit for the establishment of a typhus hospital in a thirty-six hour period.

Lt. Comdr. Claude R. Bruner, Columbia, has been awarded the Legion of Merit in recognition of medical services in the invasion of Saipan.

Dr. Paul F. Max, St. Louis, has recently been promoted from Major to Lieutenant Colonel.

Brigadier General George B. Foster, Commanding Officer of O'Reilly General Hospital, Springfield, recently was chosen Springfield's "outstanding citizen and man of the year" and awarded an engraved bronze plaque by the Springfield Chamber of Commerce for his activities in coordinating the welfare of the hospital



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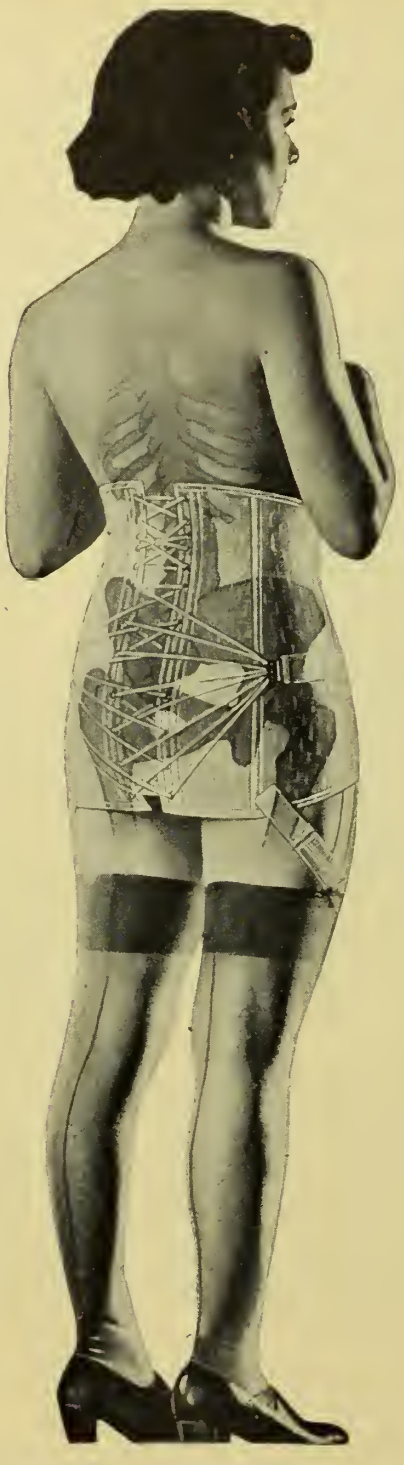
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1. Bull. N. Y. Acad. Med. 18:497 (Aug.) 1942.

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DEATHS

Eyerman, Edward Herman, M.D., St. Louis, a graduate of St. Louis College of Physicians and Surgeons, 1898; member of the St. Louis Medical Society; Fellow of the American Medical Association; age 70; died January 2.

Porter, John Edwin, M.D., Knobnoster, a graduate of Marion-Sims College of Medicine, 1897; member and former president of Johnson County Medical Society; Fellow of the American Medical Association; aged 78; died January 6.

Flury, John Albert, M.D., St. Louis, a graduate of Washington University School of Medicine, 1912; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 59; died January 9.

Moore, Harry M., M.D., St. Louis, a graduate of Washington University School of Medicine, 1898; honor member of the St. Louis Medical Society; retired; aged 71; died January 16.

Bedal, Adelheid C., M.D., Kirkwood, a graduate of the Woman's Medical College of Pennsylvania, 1891; honor member of the St. Louis Medical Society; retired; aged 85; died March 20.

LEGISLATION

House Bill No. 138, an act requiring that the Board of Curators of the University of Missouri shall establish a full four years course in medicine with the last two years in Kansas City was approved by the House of Representatives of the Missouri Legislature acting as a committee of the whole, Wednesday, April 18. It is expected that the bill will come up for perfection and final passage sometime within the next two weeks.

House Bill No. 206, an act requiring that anyone using the prefix "Dr." or "Doctor" before his name shall affix suitable words or letters after his name stating the type of doctor he is, such as M.D., osteopath, optometrist, has been passed unanimously by the House of Representatives. The bill was sponsored by two physician members of the House, Drs. J. A. Gray of Atchison County and A. F. Wagner of Wayne County. The bill will now go to the Senate for the concurrence of that body.

BOOK REVIEWS

THE MIND OF THE INJURED MAN. By Joseph L. Fetterman, M.A., M.D., Assistant Clinical Professor of Nervous Diseases, Western Reserve University School of Medicine, Cleveland, Ohio. 28 Illustrations. Chicago: Industrial Medicine Book Company. 1943. Price $4.00.

This is a book that should be attractive to the general practitioner, the industrial surgeon and industrial nurse. It is not sufficiently comprehensive or technical to offer much appeal to the well trained neurologist or psychiatrist.

Dr. Foster Kennedy has written a brief somewhat eulogistic foreword; possibly overrating the value of the book.

There are a number of good original illustrations and some selected from authoritative medical literature. Number 9 on page 55 reads: "Section of the brain showing petechial hemorrhages in the white matter." I believe I can discern even a number of hemorrhages in the gray cortical matter as well as the white. Of course it is well known that hemorrhages stand out more boldly in the white substance of the brain or spinal cord com-

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pared with the gray. In chapter 6, page 63, there might have been made a little clearer expression of his idea, "Healing tendency on the part of nature which aims to bring about a return to 'healthy functions.'" Careful studies in neuropathology would lead one to believe that in any organic changes due to trauma of the brain, one might anticipate at least some scarring, even ever so mild, either in the parenchymatous brain tissues or the attendant vascular system. I believe the author minimizes excessively the frequency of epilepsy following brain trauma.

The writer devotes a considerable number of pages to the several methods of psychoanalysis and especially eulogizes Freud and Adler. There are several references to neuroses, but he reverses his opinion in the several places discussing possible organic changes in neural tissues.

His chapter relative to treatment is rather brief and short in detail, but nearly all-inclusive. The limited size of the book may have led to this method of handling the subject.

The writer divides psychoses following trauma of the brain into three great groups which may be considered essentially correct. He also honestly stresses the vast variety of clinical manifestations, which is true for a psychosis attendant upon whatsoever etiologic or path ologic cause. To illustrate the book as an up-to-date work, one might commend the several pages devoted to herinated disk which usually is caused by some spinal column trauma.

The author has attempted to consider the medico-legal aspect from the viewpoint of the plaintiff as well as the defense.

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By Charles H. May, M.D. Consulting Ophthalmologist to Bellevue, Mt. Sinai and French Hospitals, New York. Eighteenth Edition, Revised, with the Assistance of Charles A. Perera, M.D., Associate in Ophthalmology, College of Physicians and Surgeons, Medical Department of Columbia University, New York. With 387 illustrations, including 32 plates, with 93 colored figures. Baltimore: William Wood and Company. 1943. Price $4.00

The fact that this standard textbook of diseases of the eye has passed through eighteen editions attests not only to its original worth, but also to its continued usefulness.

The content and format of the present edition is essentially similar to those of its predecessors. The necessary revisions in the text and in the illustrations have been made so that this textbook still conforms with the modern trends in ophthalmology.

In their aim to make this textbook one for the medical student and the general practitioner, the authors are successful. Undoubtedly this book will continue to be the standard elementary textbook for diseases of the eye. T. E. S.

RENAL LITHIASIS. By Charles C. Higgins, M.D., Cleveland Clinic, Cleveland, Ohio. Springfield, Illinois: Charles C. Thomas. 1943. Price $3.00.

Animal experiments carried out over short periods of time, two to three months, in which diets deficient in vitamin A failed to show any appreciable urinary calculus disease but when extended to the six or eight months periods, the bladder calculae appeared in 88 per cent of all animals while only 41 per cent developed renal calculae, gave the incentive for this study on humans.

In animals urinary infection seldom occurred on this vitamin A deficient diet under a two months period, but after three months all cases revealed a coexisting infection. Either the calcium or the phosphate stones could be produced by changing the preponderance of such constituents in the diets, and assuring the proper urine Ph., which would maintain an alkaline balance.

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other vitamin deficiencies failed to show specificity. The intravenous injection of isolated organisms from calculus cases failed to produce stones even though infections occurred in the urinary tissues.

Keratinization of renal tissues was found to be almost an index of the extent of damage in the vitamin A deficiency cases. This desquamation was severe enough to produce enough fibrin and exudate to cause the nucleus for the mineral accumulation and stone formations.

In humans, also, a corrective diet and a high vitamin A diet was used in turn to reverse this process and cause disappearance of stone, similar to animal experimentation but limited numbers of cases.

The chapter on the surgical treatment is very apt and is well but briefly handled; this has been more thoroughly handled in other books but is included as it is still quite evident that the majority of all stones defy the chemical dissolution theory.

The chapter on dietary treatment and specified diets is unfortunately too brief and should have been elaborated as it is the real crux of this problem. The explanation for the use of such diets and the vitamin factors makes this most helpful to the practicing physician, even though his access to chemical laboratories is limited.

R. L. H.

ESSENTIALS OF DERMATOLOGY. By Norman Tobias, M.D., Senior Instructor in Dermatology, St. Louis University, Assistant Dermatologist, Firmin Desloge and St. Mary's Hospitals; Visiting Dermatologist, St. Louis City Sanitarium and Isolation Hospital; Fellow American Academy of Dermatology and Syphilology; Diplomate, American Board of Dermatology and Syphilology. Second Edition. Philadelphia: J. B. Lippincott Company. 1944. Price $4.75.

This is a volume of 480 pages covering in comprehensive outline the needs of a busy student, physician or teacher. In the author's basic survey, he emphasizes the importance of history taking, etiologic factors and cutaneous diagnosis. A short concise review of anatomy and physiology of the human skin is presented. The whole work is grouped conveniently under thirty-two headings. The subject of allergy and contact dermatitis has received special attention showing the importance of the hereditary role in atopic manifestations. The subject of treatment has been set forth clearly with attention called to the newer medicaments such as the sulfonamides, sera and the more efficacious topical preparations. Many of the formerly objectionable combinations have been eliminated. Throughout, the subject matter is enriched greatly with many excellent photographic illustrations.

The first edition has been popularized to the extent that a revised one was made desirable. A need has been met by this publication that will be a most welcome contribution to the student and teacher of dermatology.

E. P. M.

MANUAL OF PHYSICAL THERAPY. By Richard Kovacs, M.D. Professor of Physical Therapy, New York Polyclinic Medical School and Hospital; attending Physical Therapist, Manhattan State, Harlem Valley State, Columbus, and West Side Hospitals; Visiting Physical Therapist, New York City Department of Correction Hospitals; Consulting Physical Therapist, New York Infirmary for Women and Children; Mary Immaculate Hospital, Jamaica, New York, St. Charles Hospital, Jefferson, L.I., Hackensack Hospital, Hackensack, New Jersey. Third Edition, Thoroughly Revised. Formerly Published Under The Title, "Physical Therapy for Nurses." Illustrated With 118 Engravings. Philadelphia: Lea & Febiger. 1944. $3.25.

Dr. Kovacs' "Manual of Physical Therapy" fills at long last a want for a small concise volume on the subject. This is just that, and may well be used as a text by the physical therapy technician and student.



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Kovacs states that he has planned a systematic presentation of the physics, physical and physiologic effects, clinical uses, technic of application, dangers and contraindications of each of the principal physical therapy methods. This he does in twenty chapters of 296 pages. The subjects so treated are heat and light, electricity, hydrotherapy, massage and exercise.

Kovacs writes succinctly and concisely. He packs a lot of useful information and wisely omits a flourishing of words merely to add bulk to the volume. A word of special praise may be said regarding the chapter on electricity. This usually is a difficult subject for the general practitioner to understand. Kovacs reverses the process. A word of commendation may also be given to Dr. McGuinness who wrote the chapter on exercise.

To be sure, a few minor faults are discernible. One such is his classification of temperatures. A temperature of from 92 F. to 98 F. is not, truly speaking, warm; it is neutral, meaning neither warm nor cool. Neutral is a term universally used. Again, in the otherwise excellent chapter on massage, the term "massage operator," in my opinion, is inelegant and smacks of beauty parlor parlance. The word "technician" seems much more appropriate. These minor details are at variance, I think, with generally accepted terms but in no way detract from the value of this excellent and timely volume. I unhesitantly recommend it to all who are interested in physical medicine. F. H. E.

Industrial Ophthalmology. By Hedwig S. Kuhn, M.D., Hammond, Indiana. With 114 Text Illustrations Including 2 Color Plates. St. Louis: C. V. Mosby Company. 1944. Price $6.50

This book satisfies a long recognized need for both the doctor of medicine and the layman and certainly should be on the required list of all who have contact with the prevention, treatment or rehabilitation of industrial disease and accidents.

The book is well written, readable and easily understood both by the lay and medical reader. The illustrations are well chosen and the charts impressive. V. L. J.

Female Endocrinology. Including Sections on the Male. By Jacob Hoffman, A.B, M.D., Demonstrator in Gynecology, Jefferson Medical College; Pathologist in Gynecology, Jefferson Hospital; Formerly Research Fellow in Endocrinology and Director of the Endocrine Clinic, Gynecological Department, Jefferson Hospital, Philadelphia. Fully Illustrated Including Some In Colors. Philadelphia: W. B. Saunders Company. 1944. Price $10.00.

This is by far the best textbook on endocrinology that has come to the attention of this reviewer in several years. The title is rather misleading for this book is a complete text on all phases of endocrinology. Although written primarily as a textbook on female endocrinology, it covers male endocrinology exceedingly well and the chapters on all endocrine glands are complete and exhaustive. It discusses the thyroid, pituitary, gonads, adrenals, thymus, pineal, hypothalamus, obesity, sterility, constitution and other subjects not always found in the average endocrine textbook.

About one third of this large book is a thorough discussion of physiology, both practical and experimental. The clinical portion describes the classic syndromes as well as individual endocrine signs and symptoms. All endocrinopathies receive adequate consideration. The third and final section is concerned with laboratory tests and diagnostic and therapeutic aids. Therapy is detailed and accurate. Each chapter is followed by an extremely good bibliography.

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presses his own opinions as well as quoting other investigators and clinicians. His experience seems to have been adequate in the laboratory and in the clinic.

This book is recommended enthusiastically to all who are interested and it should be in the library of every gynecologist and internist. L. C.

NEW AND NONOFFICIAL REMEDIES, 1944. Containing Descriptions of the Articles Which Stand Accepted By the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1944. Issued Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Chicago: American Medical Association. 1944. $1.50.

The current volume of "New and Nonofficial Remedies" reflects two important and forward looking decisions of the Council, namely, to use the metric system exclusively in all its publications, and to consider for acceptance contraceptive preparations offered for use as prescribed by physicians. These decisions in turn reflect the vigorous and progressive leadership of the Council in the service of Medicine.

The chapter on contraceptives is quite comprehensive; with the acceptance of more preparations, it will undoubtedly assume a large place in New and Nonofficial Remedies. The Council has thus far accepted some contraceptive jellies and creams, contraceptive diaphragms, diaphragm inserts, syringe applicators, and fitting rings. It is understood that a number of additional preparations have been submitted for Council consideration since the book went to press. This chapter represents a courageous and long-needed innovation.

Some of the new preparations that appear in this volume are: Succinylsulfathiazole, a new sulfonamide, a proprietary brand being 'Sulfasuxidine"; Diodrast Concentrated Solution, a preparation of the already accepted Diodrast, for use in a special diagnostic procedure for visualization of the circulatory system and also cholangiography; a preparation of Sodium Benzoate for use as a liver function test; Mersalyl and Theophylline, accepted under the name Salyrgan-Theophylline Tablets, proposed as an adjunct to intravenous injection of the already accepted drug; Zinc Insulin Crystals and Zinc Insulin Injection Crystalline; Tetanus Toxoid; and Concentrated Oleovitamin A and D, a dosage of the pharmacopoeial preparation.

A glance at the preface shows that certain general articles have been revised to bring them up to date. More or less important revisions have been made of the following chapters: Barbituric Acid Derivatives, Estrogenic Substances; Parathyroid; Ovaries; Sulfonamide Compounds; Vitamins, especially the sections, Vitamin B. Complex and Vitamin D. In this connection it is worth noting that each chapter in the book is reviewed annually, or more often if indicated, by the responsible referee for such revision.

This volume is of paramount interest to all those concerned with rational and modern drug therapy.

SIMPLIFIED DIABETIC MANAGEMENT. By Joseph T. Beardwood, Jr., A.B., M.D., F.A.C.P.; Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania; and Herbert T. Kelly, M.D., F.A.C.P., Associate in Medicine, Graduate School of Medicine, University of Pennsylvania. Fourth Edition. Philadelphia: J. B. Lippincott Company. 1944. Price $1.50

First published in 1931, this elementary manual offered by Beardwood and Kelly has been now reached a fourth edition. It is a simple exposition of diabetic treatment, conservative in point of view, intended for either physician or patient. Sample diets and diets for the management of certain of the common complications of diabetes as well as a host of recipes are included. It may be recommended because it follows a middle-of-the-road course in the present day maelstrom of diabetic treatment and mistreatment. B. Y. G.



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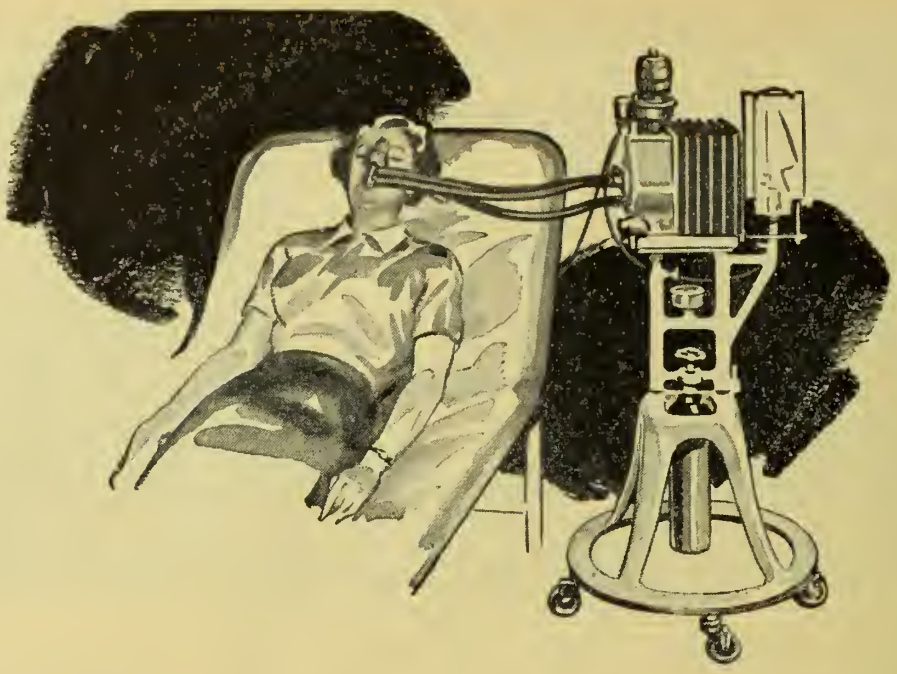


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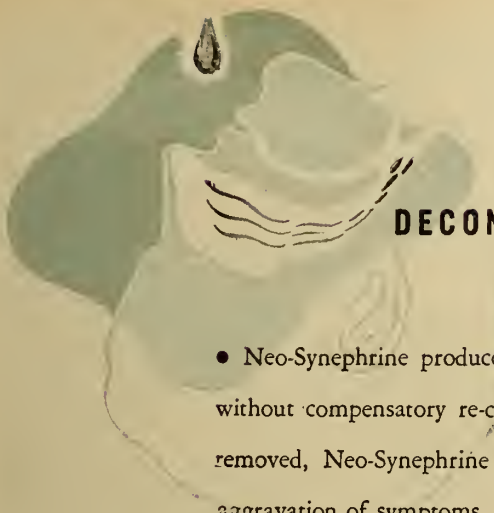


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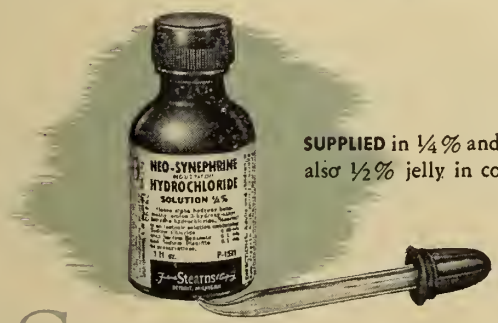
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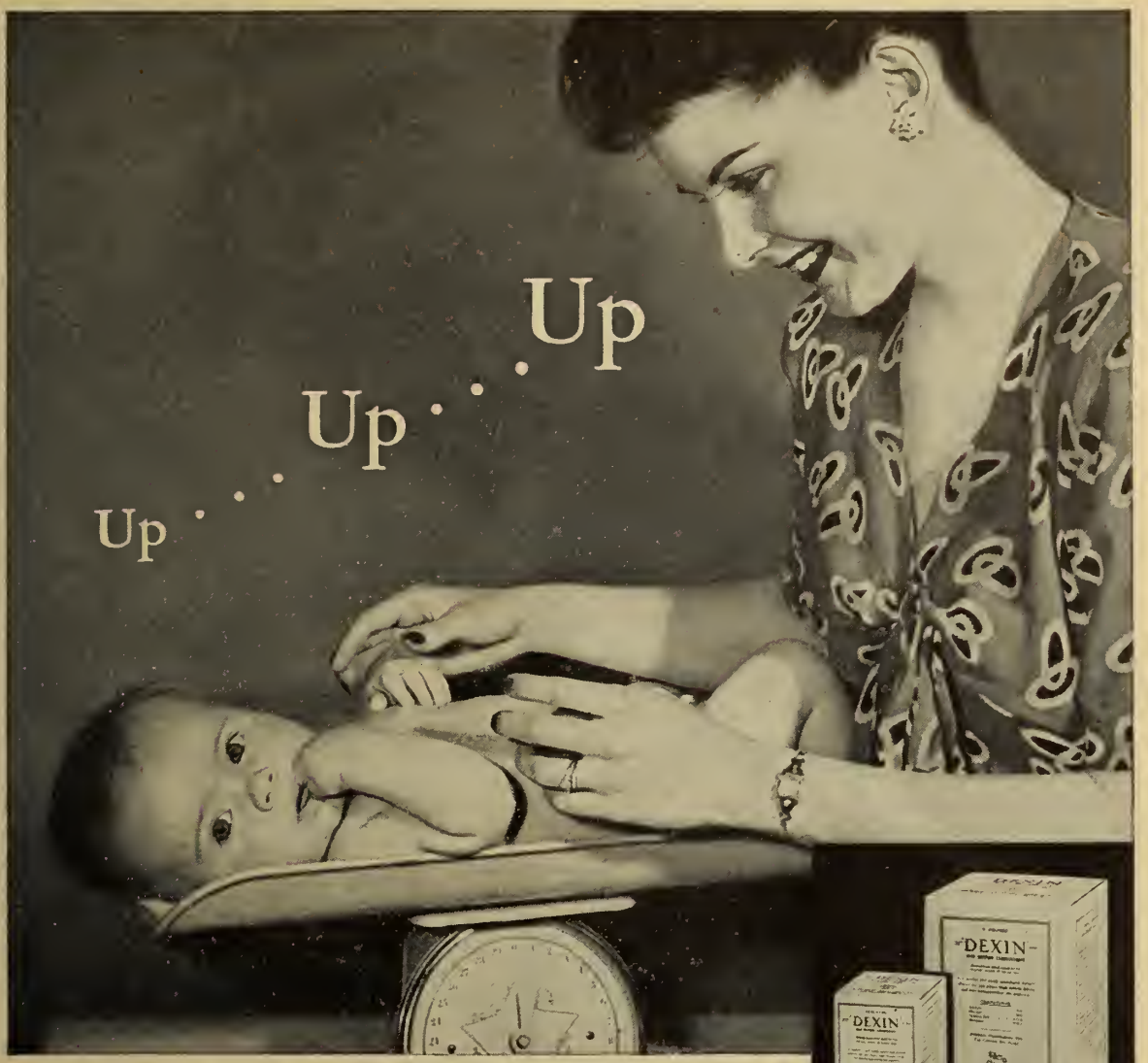
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JUNE, 1945

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1. Compton, B. C.; Bieren, R. E.; Janes, E. G.; Inloes Jr, B. H.; Kardash, T., and Hundley, J. M.: Treatment of Gonacaccic Vulvovaginitis, *J.A.M.A.* 127:6 (Jan. 6) 1945.

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Penicillin DOSAGE TABLE*

INDICATIONS	INITIAL DOSE (UNITS)	CONTINUING DOSAGE (UNITS)	UNITS IN 24 HR.	REMARKS
Serious Infections (staphylococcus, clostridium, hemolytic streptococcus, anaerobic streptococcus, pneumococcus, gonococcus, anthrax, meningococcus) Adults and children	15,000 to 20,000	(a) Intravenous drip: 2000 to 5000 every hr.	40,000 to 120,000 or more	(a) Dissolve ½ of 24 hr. dose in 1 liter (1000 cc.) normal saline; let drip at 30 to 40 drops per minute.
		or (b) Intramuscularly: 10,000 to 20,000 every 3 or 4 hr.	40,000 to 120,000 or more	(b) Concentration: 5000 U. per cc. normal saline.
		or (c) Intramuscular drip	40,000 to 120,000 or more	(c) Total daily dose in 250 cc. normal saline.
Infants	5000 to 10,000	3000 to 10,000 intramuscularly every 3 hr.	20,000 to 40,000 or more	Each dose in 1 or 2 cc. of normal saline.
Chronically infected compound injuries, osteomyelitis, etc. Adults and children	5000 to 10,000	10,000 every 2 hr. or 20,000 every 4 hr. intramuscularly or intravenously. Larger doses may be necessary at times.	40,000 to 120,000 or more	Concentration for intramuscular inj.: 5000 U. per cc. normal saline. For intravenous inj.: 1000 to 5000 U. per cc. Supplement with local treatment.
Gonorrhea	20,000 every 3 hr. intramuscularly for 5 doses		100,000	Results of treatment should be controlled by culture of exudate.
Empyema Adults and children	30,000 to 40,000 once or twice daily into empyema cavity		30,000 to 80,000	Dissolve in 20 to 40 cc. normal saline and inject into empyema cavity after aspiration of pus.
Meningitis Adults and children	10,000 once or twice daily into subarachnoid space or intracisternally		10,000 to 20,000	Concentration: 1000 U. per cc. normal saline.
Bacterial Endocarditis Adults and children	25,000 to 40,000	25,000 to 40,000 every 3 hr. intramuscularly	200,000 to 300,000	Continuous treatment for 3 weeks or longer. In a few cases the intravenous drip is more advantageous.

*Bosed upon recommendations by Chester S. Keefer, *War Productian Board Penicillin Leaflet*, Apr. 1, 1945; and by Wallace E. Herrell and Roger L. J. Kennedy, *Journal af Pediatrics*, 25:505, Dec., 1944.

● *Write for pocket size copies of this Dosage Table*

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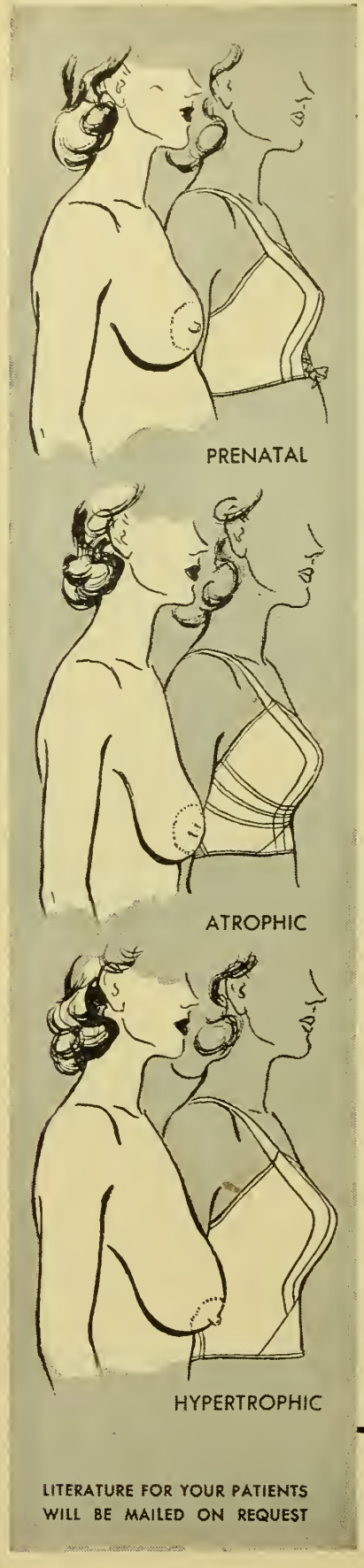
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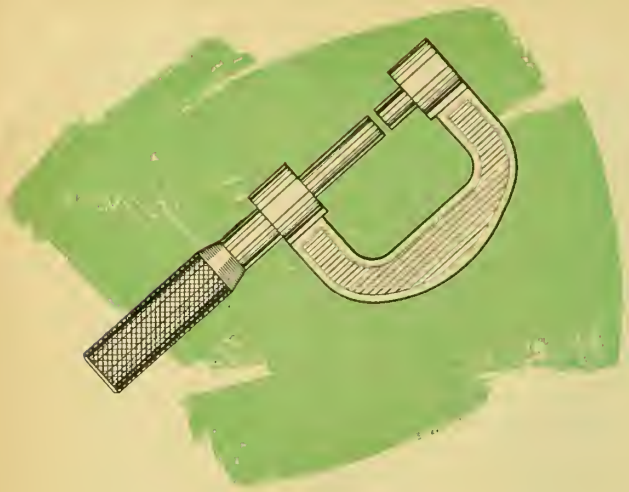


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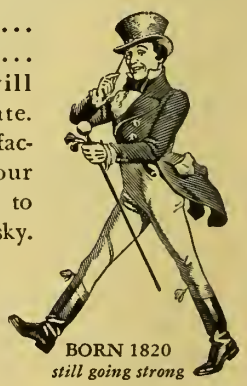


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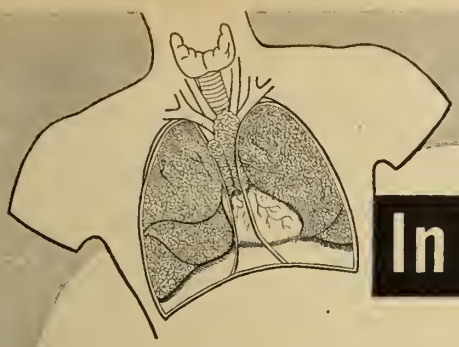
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*Stainsby, W. J.; Foss, H. L., and Drumheller, J. F.: Clinical Experiences with Penicillin, Pennsylvania M. J. 48:119 (Nov.) 1944.

McBryde, A.: Hemolytic Staphylococcus Pneumonia in Early Infancy; Response to Penicillin Therapy, Am. J. Dis. Child. 68:271 (Oct.) 1944.

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Larsen, N. P.: Observations with Penicillin, Hawaii M. J. 3:272 (July-Aug.) 1944.

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FOR ACQUIRED HEMOLYTIC ICTERUS NONTRAUMATIC EMERGENCY SPLENECTOMY

B. W. KLIPPEL, M.D.
AND
G. O. BROUN, M.D.
ST. LOUIS

The familial type of hemolytic icterus is now well recognized and not infrequently seen. The acquired form of hemolytic icterus is more rare and presents a more difficult diagnostic problem. Splenectomy is the accepted treatment of severe cases of familial hemolytic icterus. The case reported indicates that equally good results may be secured in some cases of the acquired form of this disease syndrome.

REPORT OF CASE

A white female, aged 66 years, first entered Firmin Desloge Hospital on November 7, 1943. The patient was in coma at the time of entry and since she had been living by herself no one was available who could give a clear account of the events immediately preceding her hospital entry. In August 1943 the patient had been admitted to the St. Louis County Hospital because of some sores on her legs thought to be impetigo. She was vaccinated against smallpox while there and experienced an extremely severe reaction with a deep ulceration of the vaccination site. While in the hospital, it was observed that she was somewhat anemic and two blood transfusions were given. She was discharged early in October of 1943.

Following discharge from the St. Louis County Hospital, the patient lived by herself and no clear history could be secured of events of the next several weeks. Her family believed her present acute illness to have been of only a few days duration.

When the patient recovered consciousness after admission to Desloge Hospital the following additional history was secured. She still gave no very clear account of events occurring between the time of discharge from the County Hospital and her entry into Firmin Desloge Hospital other than progressive weakness and loss of appetite.

Past History.—The patient had had measles, mumps, diphtheria, whooping cough, chicken pox and scarlet fever as a child. There was no other illness until onset of present illness.

Catamenia.—Onset was at 12 years. Menstruation was always regular, thirty days, lasting for three days. Menopause was at 39 years.

Family History.—One brother was living and well, ten brothers were dead. Eight of the brothers had died in infancy. Three sisters were living and well. Her father had died of cancer and her mother had died shortly after a childbirth. The patient had two children living and well. There were no history of anemia or jaundice in the family.

The patient, at time of entry, was comatose, irrational and irritable. She appeared extremely pale and at the same time was jaundiced. Respirations were deep and 30 per minute. Pupils were equal and reacted to light. There was no lymphadenopathy. Rales were heard in bases of both lungs posteriorly. Jugular veins were prominent, cardiac dulness was found to be increased to the left. No cardiac murmurs were heard at the time of hospital entry. Blood pressure was only 70/35 and the pulse rate was 100 per minute. The liver extended a hand's breath below the costal margin. The spleen was not felt. There was some diffuse abdominal tenderness. Both hands showed joint deformities, particularly hyperextension of the proximal interphalangeal joints of both hands. All tendon reflexes were hyperactive. No pathologic toe signs were found. The patient appeared to have lost much weight and was greatly dehydrated.

Urinalysis was negative for albumin and sugar, but showed the presence of acetone and bile pigment.

The leukocyte count was 18,900 per cc., the erythrocyte count was 750,000 per cc. with a hemoglobin of less than 2.0 gms. per 100 cc. The hematocrit was 8.0 volumes per cent. The mean corpuscular volume was therefore 106 cubic microns.

The differential count was reported as follows: myelocytes 9 per cent, juveniles 12 per cent, stabs 19 per cent, segmented neutrophils 41 per cent, monocytes 1 per cent, lymphocytes 18 per cent. A number of normoblasts were also present.

The saline fragility test showed beginning hemolysis at 0.44 per cent saline and complete hemolysis at 0.34 per cent.

A doubtful Kahn test was secured during this hospital entry. The nonprotein nitrogen was 67 mg. per cent and the blood sugar was 112 mg. per cent.

The CO_2 combining power of the plasma was 26 volume per cent, probably due to the starvation acidosis which also accounted for the acetonuria.

The icterus index was 51. The direct van den Bergh test gave a prompt reaction and the quantitative van den Bergh showed 3.5 mg. bilirubin per 100 cc. of plasma.

From the Departments of Surgery and Medicine of St. Mary's Group of Hospitals of St. Louis University.

As a life saving measure the patient was immediately transfused with 500 cc. of whole blood in glucose citrate solution on the day of entry and again on November 8 and 9.

Plasma proteins determination on November 8 showed a total protein of 6.17 per cent with a plasma albumin of 3.98 per cent and a globulin of 2.28 per cent. Blood sodium chloride was 610 mg. per cent.

By the time the third transfusion had been completed the CO_2 combining power of the plasma was 56 volume per cent and the icterus index had dropped to 33. The nonprotein nitrogen had dropped to 40 mg. per cent. The leukocyte count had fallen to 6,850 per cc. The red count had been raised to 1.63 millions per cc. and the hemoglobin to 6.1 gms. per 100 cc. The mean corpuscular volume was 107 cubic microns. The mean corpuscular hemoglobin was 37.5 and the mean corpuscular hemoglobin concentration 34.5 per cent. The differential count showed myeloblasts 1 per cent, juveniles 2 per cent, stabs 24 per cent, segmented neutrophils 37 per cent, eosinophils 1 per cent, monocytes 1 per cent and lymphocytes 34 per cent.

Myeloid leukemia was considered as a possible diagnosis on the basis of the high percentage of immature granulocytes but the rapid improvement after transfusion served to render this diagnosis unlikely.

Because of the enlarged liver accompanied by bilirubinuria and the prompt direct van den Bergh reaction it was felt that a liver pathologic condition was present and that this was sufficient to account for the jaundice. No acute evidences of blood destruction followed the three transfusions. On the contrary, they produced marked clinical improvement.. This together with the normal saline fragility test was taken as evidence against hemolytic jaundice at that time.

The macrocytic nature of the anemia suggested the use of liver extract therapy. Hence, crude liver extract was injected at first daily and later every other day. A gastric analysis was attempted but the patient refused to swallow the tube. It was thought that the macrocytic anemia might be due to inability of the damaged liver to store the antipernicious anemia factor. As to the nature of this liver condition—cirrhosis without portal obstruction was considered as the most likely diagnosis, although a carcinoma of the liver was not excluded.

Distinct clinical and hematologic improvement occurred during the liver extract therapy, although full remission was not secured. The red count rose first to 2,200,000 with 7.4 gms. of hemoglobin and later to 2,500,000 with 10 gms. of hemoglobin. The patient was discharged from the hospital when this partial remission had been secured with instructions to report to the outpatient department for continuation of liver extract treatment and further observation of the liver and blood condition. The patient failed to make a single visit to the outpatient department.

Because of the failure to report to the outpatient department for treatment, the patient received no liver extract after her discharge from the hospital on January 8, 1944, until her reentry to the hospital on October 1, 1944. She had complained of weakness and some dyspnea in the interval. It was because of exacerbation of these symptoms together with numbness and tingling of the hands and feet that she entered the hospital for the second time.

She again appeared pale and deeply jaundiced. She was dyspneic with a respiratory rate of 32 per minute. The lung fields seemed clear. The heart rate was 84 per minute. Systolic aortic and mitral cardiac murmurs were heard. The liver was felt 4 cm. below the costal margin and the spleen was now greatly enlarged, extending 8 cm. below the left costal margin.

Laboratory findings during this admission were as follows: On October 1, red blood cells 1.7, hemoglobin 8, transfusion given; October 2, white blood cells 7,100, red blood cells 1.8, hemoglobin 7, transfusion given; October 5, red blood cells 1.5, hemoglobin 6, crude liver extract and transfusion given; October 6, white blood cells 7,500, red blood cells 1.32, hemoglobin 6; October 9, white blood cells 15,600, red blood cells 5. Juvenile cells were 8 per cent, stab 16 per cent, segmented 37 per cent, lymphocytes 38 per cent, monocytes 26 per cent; mean corpuscular volume was 106; mean corpuscular hemoglobin was 41 per cent; mean corpuscular hemoglobin concentration was 32; reticulocyte count was 15 per cent. On October 12, red blood cells were 1.48, hemoglobin 5.5, transfusion given; October 13, red blood cells 1.26, hemoglobin 4.0, transfusion given; October 14, red blood cells 1.10, hemoglobin 4.0; October 15, red blood cells 940,000, hemoglobin 4.0. Prothrombin was 58 per cent, icterus index 75, van den Bergh, direct plus, indirect plus. Fragility test hemolysis began at 0.9, completed at 0.28. Hematocrit was 9.8

Because of the failure of the anemia to respond to liver extract, and the splenomegaly together with the increased fragility of the red cells to hypotonic saline, and particularly because of the rapid disappearance of transfused blood and the steadily down hill course, it was felt that a hemolytic jaundice of splenic origin was present.

The patient therefore was transferred to surgical service. She had by that time received a total of six transfusions since admission on October 1 and in spite of this she had become progressively more anemic. At that time her red blood count was 940,000 and hemoglobin 4.0 gms. She appeared definitely moribund. Continuous oxygen was being given. The patient was taken to the operating room for immediate splenectomy. Transfusion was started at the beginning of the operation. Under local novocaine anesthesia supplemented by nitrous oxide and oxygen, a transverse incision was made on the left side 1½ inches above the level of the umbilicus, cutting across the rectus muscle and sheath and separating the external and internal oblique muscles. The spleen was enlarged to about three times normal size. It was firm and dark blue. It was covered by omentum and had fibrous adhesions binding it down on all surfaces. Because of the critical nature of the patient's condition, the liver was not explored during this operation.

The spleen was mobilized by blunt and sharp dissection and all of its blood vessels were ligated. The splenic artery was ligated first. The vein was not ligated for a few minutes to allow the blood of the spleen to return into the circulation. Closure was in layers with chromic catgut and silk for the skin. No drain was placed.

Postoperative Note.—Condition immediately postoperatively showed marked improvement compared to the preoperative condition. The transfusion was followed immediately by 1,000 cc. of plasma and this by 1,000 cc. of bank blood.

Pathologic Report.— Gross examination: Specimen was a spleen weighing 462 grams. The capsule was somewhat thickened and grey in color. On section the pulp was rubbery in consistency, greyish-red in color.

Microscopic examination: Section showed a red splenic pulp almost entirely displacing lymphoid elements. The pulp was dotted with pigment granules and red cells undergoing dissolution. In some areas sinusoids stood out clearly containing macrophages, pigment and red cells. Small areas of blood forming cells were in evidence.

Diagnosis: Splenomegaly consistent with hemolytic anemia.

Postoperative therapy was as follows: (1) vitamin C, 500 mgs. daily; (2) crude liver extract, 4 cc. daily; (3) pentanucleatide, 10 cc. daily; (4) reticulogen, 1 cc. daily; (5) digitalis, 1 cat unit daily.

Postoperative Course.—On October 16, white blood cells were 8,200, red blood cells 1.92, hemoglobin 7.5; October 17, white blood cells 8,100, red blood cells 2.1, hemoglobin 8.0; October 18 white blood cells 8,200, red blood cells 2.2, hemoglobin 8.6; October 19, white blood cells 7,460, red blood cells 2.97, hemoglobin 8.0; October

23, white blood cells 11,000, red blood cells 2.98, hemoglobin 8.5. Mean corpuscular volume was 100, average diameter of red cells, 9.34. Mean corpuscular hemoglobin was 31. Mean corpuscular hemoglobin concentration was 31 per cent, reticulocyte count 23 per cent, hematocrit 27 per cent. There were 11 smudge cells, 17 normoblasts and 1 erythroblast per 100 white blood cells counted.

On November 1, white cells were 10,200, red blood cells 3.24, hemoglobin 9.8; mean corpuscular volume 83, average diameter 6.8; mean corpuscular hemoglobin 30, hematocrit, 27 per cent; mean corpuscular hemoglobin concentration 35.8 per cent; serology showed 2 Kahn units plus; reticulocytes 8 per cent.

On November 16 the patient had hemoptysis of one cupful of blood and mucus.

On November 17, white blood cells were 15,200, red blood cells 3.56, hemoglobin 11.9; mean corpuscular volume 87; mean corpuscular hemoglobin 33, mean corpuscular hemoglobin concentration 39 per cent; reticulocytes 3.6 per cent; hematocrit 30.5 per cent; hemolysis began at 0.60, complete at 0.26; platelet count was 210,000; 3 myelocytes and 49 smudge cells per 100 white blood cells. Differential count showed juveniles 3 per cent, stabs 12 per cent, segmented 43 per cent, eosinophils 2 per cent, lymphocytes 60.0 per cent.

On November 24, white blood cells were 14,250; red blood cells 3.75, hemoglobin 10.2; myelocyte forms 4 per cent, stabs 12 per cent, segmented 24 per cent, lymphocytes 60 per cent.

On December 6, white blood cells were 16,450; myelocytes 4 per cent, juvenile 1 per cent, stabs 16 per cent, segmented 21 per cent, lymphocytes 64 per cent.

On December 9, the patient was discharged from the hospital, walking, and has been up and about without difficulty since that time.

Since discharge the following blood studies have been made: On December 29, the white blood cells were 14,000, red blood cells 4.5, hemoglobin 15.2; reticulocytes 0.6 per cent; platelet count 180,000. On February 19, the white blood cells were 10,200, red blood cells 5.20, hemoglobin 15.3, reticulocytes 0.2 per cent; mean corpuscular volume 78 cc.; mean corpuscular hemoglobin 28; mean corpuscular hemoglobin concentration 38 per cent; differential count: stabs 7 per cent, segmented 33 per cent, eosinophils 2 per cent, basophils 2 per cent, monocytes 7 per cent, lymphocytes 49 per cent; platelet count 220,000 per cc.; icetrus index 8.6 units; hemolysis beginning at .46, completed at .24; hematocrit 40.5 per cent.

During the second hospital entry and in the period since discharge consistently positive serologic blood tests for syphilis have been secured. This may account for both the hepatic and splenic pathologic conditions. Now that the patient's condition has improved greatly, antisyphilitic treatment will be given.

DISCUSSION

The functions of the spleen still remain somewhat obscure. It is known, through the work of Bancroft, that the spleen serves as a reservoir of blood during periods of quiescence and contracts to pour its reserve supply of blood into the general circulation during times of physical activity, excitement and such. There is also a distinct suggestion that the spleen exerts an inhibitory action on production of all three formed elements of blood, the erythrocytes, leukocytes and platelets. Hence, anemia, leukopenia and thrombocytopenia may result from too great accentuation of this action, as occurs for example in congestive splenomegaly. Finally, the role of the spleen in blood destruction is quite well established in the familiar type of hemolytic icterus. The case reported had no history of the occurrence of icterus in the family. She herself lived to be more than 60 years of age before the appearance of any icterus. It would therefore seem impossible to classify her case as being of hereditary origin. Splenomegaly of such size as to render the spleen easily palpable developed in the interval between the two entries to Firmin Desloge Hospital. Macrocytic anemia was present during the first entry but blood transfusions were well tolerated. In this instance, an alteration in splenic function appeared to develop along with the increase in splenic size of such type that transfused blood given during the second hospital entry was destroyed at a rapid rate of speed; hence, the diagnosis of acquired hemolytic icterus. The participation of the spleen in this blood destruction would seem to be proven by the dramatic improvement following splenectomy. The positive serologic tests for syphilis may indicate that the pathologic changes in the liver as well as the spleen may be associated with this disease. In this case it is felt that splenectomy was a life saving measure.

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AMYLOID DISEASE OF THE KIDNEY

LEO J. WADE, M.D.
K. RAMSAY SCHLADEMAN, M.D.
and
FRANZ U. STEINBERG, M.D.
ST. LOUIS

Many clinicians consider the diagnosis of amyloid disease to be of academic interest only. This is unfortunate for some observers contend that if an early diagnosis is followed by vigorous treatment of the primary disease plus adequate supportive therapy there is a reasonable hope for cure in a number of instances.[12] With this in mind, the authors have reviewed sixty-six autopsied cases of amyloidosis of the kidneys and have attempted to correlate the clinical findings with the anatomic lesions.

INCIDENCE

Among 7,500 consecutive autopsies 110 cases of amyloid disease were found, an incidence of 1.47 per cent. Only 66 of the 110 cases had renal involvement, representing approximately 60 per cent of the cases of amyloidosis and 0.88 per cent of the total autopsy series.

Table 1. *Sex Distribution*

	Number of *Cases*	*Per cent*	*Controls* Per cent
Males	44	66.7	61.7
Females	22	33.3	38.3
Ratio = % cases		Males	= 1.08
% controls		Females	= 0.87

Males : Females = 1.08 : 0.87 =1.25 : 1

From the Tuberculosis Services of the St. Louis City and the Robert Koch Hospitals, the Snodgrass Laboratory and the Department of Medicine, Washington University School of Medicine.

There were exactly 2 males for every female in the series but males far outnumbered the females in the entire autopsy series so that there was really no difference in the sex distribution. (Table 1.)

White patients outnumbered Negro patients in this series almost 2 to 1. (Table 2.)

Table 2. *Race Distribution*

	Number of Cases	Per cent	Controls Per cent
White	42	63.6	49.3
Negro	24	36.4	50.7
Ratio = % cases / % controls		Whites = 1.29 Negroes = 0.72	

Whites : Negros = 1.29 : 0.72 = 1.8 : 1

The largest percentage of the cases (36.3 per cent) occurred in the 31 to 40 year old group. In comparison with the age distribution in the control series this represents a definite increase in the incidence of renal amyloidosis during this decade. This increase is at the expense of both the younger and older groups. (Table 3.)

Table 3. *Age Distribution*

Age Group	Per Cent Cases	Per Cent Controls
0-1 year	0	0
1-10	0	0.4
11-20	10.6	13.3
21-30	16.7	23.1
31-40	36.3	22.2
41-50	12.1	16.7
51-60	13.8	15.0
61-70	4.5	6.8
71-80	4.5	2.1
81-90	1.5	0.4
91-100	0	0

ETIOLOGIC FACTORS

In 61 of the 66 cases (92.4 per cent) an associated tuberculosis was found. In all but 2 of the tuberculous patients, lung involvement was present; these 2 had isolated tuberculosis of the bone. (Table 4.) Nine of 36 cases with bone tuberculosis had amyloid disease of the kidney which is a far greater incidence than in patients with tuberculosis of any other site. This is in agreement with the observations of others.[2]

Table 4. *Primary Disease Process*

	Number Cases	Per Cent of Total
Tuberculosis of lung and bone	7	10.6
Tuberculosis of lung and kidney	9	13.6
Tuberculosis of lung with empyema	9	13.6
Tuberculosis of lung uncomplicated	34	51.6
Total tuberculosis of lung	59	89.4
Tuberculosis of bone	2	3.0
Total tuberculosis	61	92.4
Osteomyelitis	1	1.5
Rheumatoid arthritis	2	3.0
Lung abscess with bronchiectasis	2	3.0
Total nontuberculous	5	7.6

PATHOLOGIC FINDINGS

Although only 60 per cent of the patients with amyloid disease had renal involvement, isolated amyloidosis of the kidney was infrequent (4.5 per cent). In table 5 is outlined the extent of the amyloid in the cases reviewed. It is observed that the likelihood of renal involvement increases with the number of organs involved.

Table 5. *Extent of Amyloidosis*

		Per Cent
Kidney (alone)	3	4.5
Kidney plus one other organ	8	12.1
Adrenal 2		
Liver 2		
Spleen 4		
Kidney plus two other organs	15	22.7
Adrenal and liver 1		
Adrenal and spleen 2		
Liver and spleen 12		
Kidney plus three other organs (Liver, spleen and adrenal)	40	60.7
TOTAL	66	100

The kidneys were usually large and pale but not invariably so. The combined weights of the two kidneys varied between 200 and 810 grams with an average weight of 414 grams. In five instances the combined weights were less than 250 grams. In three of these five cases the amyloidosis was advanced. In all five instances the age of the patient was 57 years or more. Vascular disease undoubtedly contributed to reduction in the kidney size. In three of the five cases hypertension was present; one patient was in shock when first seen and expired before regaining compensation of his peripheral circulation. (Table 6.)

Table 6. *Weight of Kidneys*

Weight in Grams (both kidneys)	Number of Cases
150-250	5
250-350	8
350-450	16
450-550	11
550-650	5
650-750	1
750-850	2

Average = 414 grams

No attempt will be made to review the pathologic change. Excellent monographs are available.[3, 5, 10] In brief, however, review of the present material reveals punctate deposition of amyloid in a few glomerular capillaries at the onset, followed by more widespread deposition with obstruction of the glomerular tufts and atrophy of the corresponding tubules. As emphasized by Moschcowitz[9] and others, the disease process is not primarily a nephrosis.

The cases in the present series have been divided into four groups according to the degree of involvement. This grouping corresponds roughly with Bell's classification:

Group I. A few deposits of amyloid are present in the glomerular capillaries.

Group II. Large confluent patches of amyloid have been deposited in the glomerular capillaries.

Group III. Almost all of the glomerulus is involved; there is beginning tubular atrophy with albuminous casts in the tubular lumen.

Group IV. The glomerulus is completely obliterated; there is advanced tubular atrophy with albuminous casts in the tubular lumen.

The distribution of the cases is apparent in table 7.

Table 7. *Clinical Findings*

	Number of Cases	Per Cent of Cases	Albuminuria	Nitrogen Retention (50 mgs. per cent plus)	Hypertension	Congo Red (90 per cent plus retained.)	Edema
Group I	10	15.1	5	1	1	0	1
Group II	16	24.2	6	1	0	0	6
Group III	17	25.7	7	1	0	1	8
Group IV	23	35.0	23	7	6	4	14
Total	66	100.0	41	10	7	5	29
Number tests performed			66	32	66	9	66
Per Cent Positive			62.2	31.2	10.6	55.5	43.9

CLINICAL FINDINGS

Albuminuria was demonstrated in 62.2 per cent of the patients in the series. The greatest incidence and the highest degree of albuminuria was present in the cases of group IV. Higher incidences of albuminuria have been reported by others.[2, 4, 5, 10] The importance of albuminuria as an early diagnostic sign has been stressed by Cohen,[4] who believes that the diagnosis should be made in suspected cases if albumin and casts are present even though the Congo red test is negative or indeterminate and his data suggests that these findings precede the increased Congo red absorption. Enthusiasm for albuminuria as a diagnostic criterion, however, must be tempered by a realization that albuminuria occurs frequently during severe chronic infections in the absence of amyloidosis.[3, 4]

The *serum protein* levels show the expected changes. Unfortunately, observations were made on only twenty patients but in almost all instances the total protein was low with an albumin to globulin ratio considerably below the normal. (Table 8.) These changes could be explained adequately on the basis of albuminuria which was present in all but two of the cases studied. A definite increase in the serum globulin occurred in two instances: one was in a patient with an early or minimal lesion while the other was in a patient with a late or advanced lesion.

Table 8. *Serum Proteins*

	Low	Normal	High	Reversal A/G Ratio
I				
II	2	2	1	3
III	3	1	0	4
IV	6	4	1	7
Total	11	7	2	14

It is regrettable that more information is not available concerning the serum proteins for they seem to play an important role in the pathogenesis of the clinical picture. Loescke[8] and Letterer[7] believe that amyloid deposition is the result of an antigen-antibody imbalance. Since antibodies are linked to the serum globulins, it is reasonable to expect some demonstrable changes if their hypothesis is correct. Eklund and Reimann[6] produced experimental amyloidosis in rabbits. They observed a marked rise of the serum globulin levels prior to amyloid deposition which fell off as soon as amyloid deposition began. It was hoped that some analogous data could be obtained on human cases but the data available is inadequate. The serum protein patterns observed are probably the result of several factors, two of the most obvious being albuminuria and malnutrition.

In only seven instances was a nonprotein nitrogen of more than 50 mg. per cent observed. Most of the normal values were obtained one or more months prior to the patient's death and the possibility of a terminal uremia cannot be excluded. Most observers have failed to indicate the time relation between the test and the patient's death. Obviously, only serial determinations in individual cases will establish the true incidence of azotemia in amyloid disease of the kidney. Pearlman[10] has reported elevation of the nonprotein nitrogen above 40 mg. per cent in 27 per cent of his patients during the last month of life. (Table 7.)

Edema was present in 29 of the 66 cases (43.9 per cent), the frequency of the edema being highest among the most severe cases. (Table 7.) Auerbach and Stemmerman found edema in 36.2 per cent of their cases while Altnow, Van Winkle and Cohen estimated that two thirds of all patients with renal amyloidosis will have terminal edema.

Diastolic pressures of 90 mm. of mercury or more were found consistently in seven patients. Six of these were in Group IV and one in Group I. Three of the patients in Group IV were in the fourth decade. The remaining four hypertensive patients were more than 50 years of age.

Although it was suspected that vascular lesions were responsible for, or associated with, the elevations in blood pressure, sections of the kidneys of the hypertensive patients could not be recognized consistently as such by several competent pathologists. Many have believed that the debilitation associated with the underlying chronic ailment tends to keep the blood pressure low. This explanation has been attacked by Willer[13] who reported some cases with profound cachexia who maintained their elevated blood pressure. This same author doubts that amyloid disease will produce hypertension even if it leads to contraction of the kidney. Three cases are cited in which infection or tumor completely destroyed one kidney while the other presented far advanced amyloidosis. In none of these was hypertension present.

In five of nine instances 90 per cent or more of injected Congo red dye was retained. Four of these were in Group IV and one in Group III. Lesser percentages of the dye were retained in single instances representing each of the four groups. While the sample is small, the percentage of positive tests is amazingly low as compared to the findings of Auerback and Stemmerman (87.5 per cent). Rosenberg is of the opinion that the test is of no appreciable value in establishing the diagnosis of renal amyloidosis. (Table 7.)

CONCLUSIONS

An analysis of 66 proven cases of amyloid disease of the kidney suggests the following diagnostic points:

1. The presence of tuberculosis, and rarely of some other chronic infectious disease, is of eminent diagnostic importance.

2. The clinical and laboratory findings are those of a nephrosis. Hematuria and hypertension suggest complicating renal disease if amyloidosis be present.

3. The serum proteins usually are decreased, probably due to malnutrition and loss of albumen. High total proteins with markedly increased globulin levels are found occasionally.

The nature of the renal lesion is such that the prognosis will in no wise be changed by failure to recognize the lesion antemortem. The reversability of the lesion, therefore, is probably of no great practical consequence.

1515 Lafayette Street.

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CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 67

PRESENTATION OF CASE

The patient was a 72 year old white salesman who was admitted to Barnes Hospital on April 16 and died on April 20, 1944.

Chief Complaint.—Cold and cough for five or six days.

Family History.—(Obtained from patient's daughter.) Noncontributory.

Past History.—(Obtained from daughter.) General health had been good; no previous history of pneumonia. One and one half years previous, the patient had developed an itching lesion on the nose which was diagnosed as squamous cell carcinoma and was treated by roentgen ray therapy. The patient had been edentulous for the last fifteen years. No significant cardiorespiratory symptoms were present. There was no history of excessive use of alcohol. The patient lived alone in a rooming house.

Present Illness.—(Information is inadequate since the patient lived alone and was too ill to give history when he entered the hospital.) Apparently he was seen by relatives approximately one week before admission to the hospital and seemed to be in good health at that time. Shortly thereafter he developed a cold which, according to his landlady, became progressively worse. He had a bad cough but apparently no noticeable chest pain. He did not want the landlady to call his daughter but, finally, she did so because his condition obviously was becoming critical. When the daughter arrived at his room, she found the patient delirious and crawling about the floor. The room was unheated and she noticed that his hands and finger nails were extremely blue. Shortly thereafter he was admitted to the hospital.

Physical Examination.—The patient was first seen in the emergency room where his temperature was found to be 35.9 C., pulse 140 (obtained only at apex), respirations 32 and blood pressure 50/40. The patient obviously was in extremis. He was cyanotic and his respirations were shallow and rapid. He was mentally obtunded and talked only in a weak whisper. He coughed occasionally, bringing up frankly bloody sputum. The skin was dry and the extremities cold. On the face there was an ulcerated area which appeared to be due to a basal cell carcinoma. The nose and nasal septum had been destroyed partially by erosion from the tumor. The conjunctivae were injected but there was no jaundice noted. The teeth had been removed and the pharynx was not remarkable. There was no stiffness of the neck and the cervical veins were only slightly distended. The trachea was not deviated. There was moderate increase in the anterior posterior diameter of the chest. Over the left lower lung field posteriorly there was dulness to percussion, increased tactile fremitus with whispered pectoriloquy and bronchial breath sounds with many fine rales. Coarse expiratory rhonchi were heard over both lung fields. The heart was not enlarged apparently to percussion, the rhythm was irregular, the sounds were of good quality and no significant murmurs were made out. Peripheral vessels showed moderate thickening to palpation. The abdomen was distended and tympanitic. The liver edge could be felt two finger breadths below the costal margin. No other organs or masses could be palpated. There was no peripheral edema.

Laboratory Data.—Blood count: red blood cells 3.17 million, hemoglobin 12 gms., white blood cells 6,800, differential count: juveniles 5 per cent, stab forms 75 per cent, segmented neutrophils 13 per cent, lymphocytes 2 per cent. Urinalysis: specific gravity 1.010, reaction acid (pH_5), albumin 1 plus, sugar negative, microscopic showed occasional cast, red cell and white cell. Blood Kahn reaction was negative. Sputum examination showed pneumo-

coccus type 10, isolated from injected mouse. Blood culture showed pneumococcus (could not be typed), ten colonies per cc. Blood chemistry: nonprotein nitrogen 74 mg. per cent; blood chloride (as sodium chloride) 475 mg. per cent. Total proteins 5.7 gms. per cent, albumin 3.3, globulin 2.4. Icterus index was 30. Van den Bergh, direct 1.06 mgs. per cent, indirect 4.84 mgs. per cent, D-I ratio 83 per cent. Electrocardiogram showed evidence of myocardial damage with auricular fibrillation and premature ventricular contractions.

Roentgen Ray Examination of Chest.—"The left border of the heart is obscured by complete opacity extending over the lower portion of the left chest as high as the third rib anteriorly. This shadow then fades out in the upper portion of the left lung field. It has the appearance of fluid in the pleural cavity. The peribronchial markings in the right lung field are coarse and feathered."

Course in Hospital.—Since the patient was in shock when he entered the hospital he was given immediately three units of plasma followed by 500 cc. of whole blood, and 5 gms. of sodium sulfadiazine dissolved in 600 cc. of 1/6 molar sodium lactate. The latter was followed by 1,000 cc. of 5 per cent glucose solution and 10 cc. of adrenal cortical extract. The patient also was placed in an oxygen tent. Ten hours after admission his blood pressure had risen to 90/66, he responded to questioning and seemed definitely improved. The sputum which he brought up was of the rusty color typical of pneumonia. Slight dulness and bronchial breath sounds were noted over the right middle lobe for the first time. In view of the findings noted on the electrocardiogram, the patient was started on digitalis therapy. The sulfadiazine level obtained a few hours after the intravenous injection was found to be 14.7 mgs. per cent, and an additional 2 grams of the drug was given intravenously. Hydrotherapy was continued and 4 more units of plasma were administered.

On the following morning the patient seemed to be somewhat improved. His blood pressure at noon was 126/76. The sulfadiazine blood level was 21.4 mgs. per cent but the nonprotein nitrogen was still elevated to 78 mgs. per cent. The white blood cell count had risen to 15,000 and the physical signs essentially were unchanged.

On the third hospital day the temperature was approximately normal, the pulse rate 100, the respirations 32 even in the oxygen tent, and the blood pressure was 110/80. On this day jaundice was noted for the first time. The nonprotein nitrogen had fallen to 62 mgs. per cent and the white blood cell count remained elevated at 15,000. Late in the afternoon the patient became irrational and began picking at his bed clothes. A thoracentesis of the left chest was attempted but no fluid was obtained. Suction was started in an attempt to remove some of the mucus from the throat and larynx.

On the fourth hospital day the temperature rose to 39 C. and the patient's respirations became more labored and rapid. It was noted that his neck was stiff, but a lumbar puncture revealed only 8 cells and a faintly positive Pandy reaction. The nonprotein nitrogen was again elevated to 85 mgs. per cent and the patient was started on penicillin treatment, being given 20,000 units intravenously every two hours.

On the morning of the fifth day, he seemed to be slightly stronger and more responsive. His blood pressure was 110/80. The cardiac rhythm at that time was regular. At approximately noon his respirations suddenly became shallow and irregular and when seen by the house officer he was found to be pale and extremely cyanotic. The pulse barely could be felt at the wrist and was then grossly irregular. The extremities were cold. The respirations rapidly became gasping in character and in spite of the administration of caffeine sodium benzoate and intracardiac adrenalin, the patient expired. Shortly before death his white blood cell count was 19,000 with a marked shift in the differential count. His nonprotein nitrogen was 133 mgs. per cent and the sulfadiazine blood level was 10.5 mgs. per cent. All blood cultures except the first one taken on the day of admission were sterile.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This case is interesting in that the patient had pneumonia and developed shock. As far as the pneumonia is concerned the patient was gravely ill. He had a positive blood culture which is a serious prognostic sign. The icterus index was 30 on admission to the hospital and a day or two later he developed jaundice. What are the factors that lead to jaundice in lobar pneumonia, Dr. Wood?

DR. W. BARRY WOOD: It is thought that anoxia has something to do with it, in that anoxia depresses liver function. In addition, there is increased destruction of the red blood cells, both in the lung and in the circulating blood.

DR. ALEXANDER: When a patient has jaundice with pneumonia, is it necessarily implied that it occurs at the stage of red hepatization?

DR. WOOD: I do not think so. It depends on the severity of the pneumonia rather than on the stage of the infection.

DR. ALEXANDER: As I understand it jaundice usually occurs at the stage of red hepatization. At that stage there is destruction of red blood cells in the lung. Is that correct?

DR. WOOD: That is correct, Dr. Alexander, and it brings up the point of what is meant by "stage of red hepatization." My concept of the pathology of pneumonia is that there are all stages at one time, except that one stage may predominate early in the infection. The gross appearance of the lung is different in different parts. In a late lesion, the outer margin will show a red rim, gray hepatization in a midzone and, in the center, resolution. However, I do agree that the optimal time for jaundice to develop would be during the early stage when most of the red cells are being destroyed.

DR. EDWARD REINHARD: Dr. Alexander, I think it is interesting that a number of years ago Dr. Rich advanced the theory that jaundice never follows the destruction of red cells alone. There must also be some impairment of the ability of the liver to excrete bilirubin. There are, however, not always definite anatomic changes in the liver that result from anoxia. Certainly

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in pneumonia there may be sufficient anoxia to affect the liver and impair its ability to excrete bilirubin. That may be an important factor in this case.

DR. WOOD: I would be interested to know if Dr. Moore subscribes to that.

DR. ROBERT MOORE: Yes, I subscribe to Rich's concept of the pathogenesis of jaundice.

DR. ALEXANDER: Is there any difference in the electrolyte balance of shock in pneumonia and shock in other cases, Dr. MacBryde?

DR. CYRIL MACBRYDE: I do not think the disturbance of the electrolyte balance is the most probable explanation for the type of shock that occurs in acute infections such as pneumonia. In pneumonia there is a peculiar electrolyte disturbance which is interesting, although it is not always associated with the phenomenon of shock. I am speaking of the low plasma sodium and chloride levels. I think we must look elsewhere than to the electrolyte and water balance for an explanation of the shock.

DR. WOOD: Dr. Alexander, I think it would be interesting for Dr. Holland, who comes from Atlanta where Dr. Stead has been working on this problem, to make some comments on it. Dr. Stead has been interested in the problem of peripheral vascular collapse in acute infections.

DR. BERNARD HOLLAND: I think Dr. Stead believes that there are two factors in the shock that occurs in infectious diseases. One is the direct effect on the heart itself which reduces the cardiac output and leads to so-called central heart failure. The heart is unable to pump out sufficient blood to take care of the needs of the body. The other factor is that, in acute infectious diseases, there is usually a high fever and rapid circulation with peripheral vasodilatation.

DR. WOOD: What about the blood volume?

DR. HOLLAND: Blood volume may be decreased only slightly. Frequently these patients enter the hospital dehydrated and their blood volume is down somewhat. However, shock cannot be explained on a decreased blood volume alone.

DR. WOOD: How should this condition be treated, according to Dr. Stead?

DR. HOLLAND: Plasma and other measures to increase the blood volume usually are given but control of the primary disease is most important.

DR. ALEXANDER: This patient's manifestations of shock were largely by symptoms. He did not have hemoconcentration, and the plasma proteins were at a high level. What is the significance of profound shock without evidence of hemoconcentration, Dr. Moore?

DR. CARL V. MOORE: In a recent paper in the *American Journal of Medical Science* the authors were impressed with the fact that the intermuscular pressure was markedly decreased. They did not notice either hemoconcentration or hemodilution in a great number of their cases of shock. The evidence for peripheral vascular collapse, which they recorded, was quite striking.

DR. EDWARD MASSIE: Dr. Moore, with this overwhelming infection the patient had a white count of 6,800. Can you correlate the low red count, the low hemoglobin and the low white count in reference to shock? Is there any parallelism between those findings and profound shock?

DR. CARL V. MOORE: I do not know of any parallelism if there is one.

DR. ALEXANDER: This is important. Those of you who heard Dr. Blalock discuss shock will remember that he pointed out that all patients with shock do not show hemoconcentration but, when it does occur, it is an important sign. Dr. Smith, how may one treat this syndrome?

DR. JOHN SMITH: I believe that strychnine is a valuable drug, especially in situations in which intravenous fluids cannot be given. A number of times I have seen the patient's blood pressure come up to normal and remain there without anything else having been done.

DR. ALEXANDER: What dose of strychnine is given?

DR. JOHN SMITH: About a sixtieth of a grain.

DR. MASSIE: About five years ago I wrote an article on shock and my main purpose was to survey all the drugs that might be of benefit in shock. My conclusion was that strychnine should be alternated with caffeine. The reason for giving a sixtieth of a grain every two or three hours during the active stage of shock was that its effect would be to work through the heightening of spinal reflexes and thus reduce the inhibition to spinal reflexes in shock. The reason for the caffeine was to heighten the sensorium of the patient. I decided that one should alternate the doses in acute cases every hour, then every two hours, and then every three hours, and then stop. There comes a time when one can give too much strychnine. However, the other therapeutic measures for shock are most important. The drugs are helpful after the other procedures have been used.

DR. ALEXANDER: It is difficult for me to believe that strychnine will give enough vasoconstriction to relieve shock.

DR. MACBRYDE: Does it not act through the vasomotor mechanism? Perhaps it acts by an increase in spinal reflexes and muscle tonus and not by a direct effect upon the capillaries and arterioles. It may be an indirect effect by an increase in muscle tonus. It may accelerate conduction across the synapses.

DR. JOHN SMITH: It must affect the capillaries because the blood pressure increases.

DR. WOOD: Dr. Alexander, I wonder if Dr. Bulger would comment on the electrolyte balance in this patient?

DR. BULGER: The chlorides would be low from loss of chlorides into extracellular fluid. The patient had not vomited and the usual picture in pneumonia is that of retention of chlorides—the urine chloride output and the chloride in the blood go down. There is no increase in blood volume but there is some increase in total body fluids.

DR. WOOD: It has always been a mystery why the patient with pneumonia in the active stage does not excrete chloride in the urine. He does not vomit any chloride, yet the blood chloride decreases. The explanation you have just suggested has been the one most frequently advanced—that it is a shift of electrolytes into the extracellular fluid from the blood. The patient usually gains a little weight and, if the extracellular fluid is measured by the thiocyanate method, as has recently been done, a rather large increase of extracellular fluid is observed during the active stage. Then the patient has a crisis. The extracellular fluid decreases to normal, the blood chlorides come up to normal and the patient begins to excrete the retained chloride. One of the main factors in this phenomenon is the shift in fluid and that would tend to precipitate shock.

DR. ALEXANDER: Is it not true that patients with pneumonia retain a considerable amount of water?

DR. WOOD: Yes, but they do not often develop peripheral edema.

DR. MACBRYDE: That probably depends on how much salt is given. They will retain huge amounts of salt and the water to go with it.

DR. WOOD: As a matter of fact we were always taught to give them salt to try to bring the blood chloride up to normal. Despite the administration of sodium chloride by mouth, the blood chloride will remain at a low level.

DR. MACBRYDE: It may be worth mentioning that if these patients are in a condition in which they may develop edema, that is, if they also have congestive heart failure, the forcing of large amounts of fluid and salt may be deleterious and induce acute cardiac failure.

Dr. Wood: Does the adrenal cortex have anything to do with this phenomenon, Dr. Alexander?

Dr. Alexander: In cases of severe pneumonia, hemorrhage in the adrenal cortex, such as is found in meningitis, certainly does occur. Please give us your ideas of the value of adrenal cortical extract in pneumonia, Dr. Wood.

Dr. Wood: I would rather refer that question to Dr. MacBryde who knows more about the adrenal cortex than I do. I have never seen it do any good, however.

Dr. MacBryde: I do not believe it does any good in cases of shock from severe infection. This probably is due to the fact that the mechanism of the shock is on the basis already discussed by Dr. Holland and probably not connected with adrenal cortical failure. During the last decade many hundreds of patients have been given large amounts of adrenal cortical hormone to see if the incidence of surgical shock would be diminished. I think that most of those studies show that cortical extracts do not have any definite effect in surgical shock or in medical shock.

Dr. B. Y. Glassberg: Some months ago there was a paper on the Waterhouse-Fredrichson syndrome in meningitis in which the author reported a number of deaths. He had one or two patients, who manifested this syndrome clinically, who were treated with extracts of the adrenal cortex and recovered. His presumption was that the therapy had been effective.

Dr. Carl Harford: I would like to ask Dr. MacBryde how soon an animal dies after all adrenal tissue is removed? It usually takes several days, does it not?

Dr. MacBryde: That is correct. There might be difficulty in recognizing the Waterhouse-Fredrichson syndrome in the presence of a severe infection such as pneumonia or meningitis.

Dr. Alexander: How large a dose of cortical extract is used?

Dr. MacBryde: Large doses would have to be used. The patient would have to be treated as if no adrenal cortex tissue were active. The dose would probably be from 100 to 200 cc. per day.

Dr. Alexander: This patient received conventional and apparently proper treatment for shock. He was given large amounts of fluid, plasma, blood and sixth molar sodium lactate. The patient received approximately 3,000 cc. of fluid on the day of admission to the hospital. Dr. Wood, is there any danger in giving large amounts of fluid to a patient with pneumonia in the acute stage? May it place an excessive burden on the right side of the heart?

Dr. Wood: There is some danger, particularly in a person 72 years of age with electrocardiographic evidence of myocardial damage such as this patient had. There is always the danger of precipitating cardiac failure.

Dr. Alexander: The patient had a nonprotein nitrogen of 74 mgs. per cent on admission. The value never dropped below 62 mgs. per cent and at death it was quite high. Dr. Wood, the question arises as to whether this was prerenal or renal in origin?

Dr. Wood: That is an excellent question, Dr. Alexander, because in order to answer it, it is necessary to predict what the pathologist will find in the kidneys. I do not know what was found in this patient's kidneys but I would expect some renal change because the specific gravity of the urine was only 1.010 when the patient came to the hospital and yet he was obviously much dehydrated. There was apparently poor renal function at that time. Whether the renal function was poor because of failure of the peripheral circulation, or because the patient had organic disease of the kidney is difficult to say. It is likely that a man of 72 would have some degree of renal disease.

Dr. Alexander: I agree with you and would venture to say that he had a great deal of renal disease. There were red blood cells in his urine and when he recovered from shock the elevation of the nonprotein nitrogen persisted. Of course, there is also the fact that he received large amounts of sulfadiazine, with a blood level of about 14 mgs. per cent. That was not considered high enough because of the positive blood culture and it was raised to 22 mgs. per cent. If he had damage to his kidneys on admission, do you think the drug may have increased the damage?

Dr. Wood: I believe the drug could make the situation worse. This case illustrates a fairly common problem in clinical medicine. In a patient with an acute infection, the urine should always be examined and the nonprotein nitrogen should be checked. If possible, this should be done before sulfonamide therapy is started. In this particular case the sulfonamide therapy was administered properly since the patient was given enough drug to bring the level up to a desired point and then he was not given any more drug until the blood level had fallen. If the maintenance dose had been continued, the blood level would have gotten out of control because the kidneys would not have been able to excrete the drug. In this case, the best thing would have been to give the patient penicillin. However, at the time of treatment, the hospital did not have an adequate supply of penicillin for patients with pneumonia.

Dr. Alexander: Do you believe the patient had uremia?

Dr. Wood: He did not have the symptoms and signs of uremia. He had what I would call azotemia.

Dr. Alexander: Do you think that the patient's irritability, "picking at the bed clothes," was due to the drugs or to uremia?

Dr. Wood: I thought the "picking at the bed clothes" was part of a toxic delirium from his infection. However, he may have developed signs and symptoms of uremia on the last day of illness.

Dr. Alexander: Did he exhibit symptoms of uremia, Dr. Smith?

Dr. Ralph Smith: The patient had recovered from shock but developed a temperature of 39 C. and a leukocytosis of from 15 to 20 thousand. Dr. Harford, do you presume that was merely pneumonia, or do you suspect that there was some complications?

Dr. Harford: I think the complications already discussed were sufficient to account for the condition.

Dr. Alexander: The first blood culture taken on this patient was positive with ten colonies, but repeated blood culture tests were negative. In a case of pneumonia, with no complicating factors, what happens terminally, Dr. Massie?

Dr. Massie: Patients with pneumonia die from pulmonary edema, from congestive heart failure, or from overwhelming toxemia. This patient did not die from congestive heart failure. If death, in this case, was terminally a cardiac death, it was from central failure. That is, he went again into peripheral circulatory failure or shock and died therein.

Dr. Alexander: Do you believe that this patient died from pulmonary edema?

Dr. Massie: No, I do not believe so. I think his death may have been due to uremia.

Dr. Glassberg: This patient's death may be explained, theoretically, by adrenal failure. In adrenal deficiency certain toxic substances have been demonstrated and these substances bring about cardiac arrestment rather promptly.

Dr. Massie: Another possible cause of death is ventricular fibrillation.

Dr. Alexander: Dr. Goldman, what is your opinion of the reason for death in this patient?

Dr. Alfred Goldman: I think the patient had pneumonia with severe toxemia. There was evidence of renal damage and failure as shown by the high blood nonprotein nitrogen. But just what the terminal factor was I can only guess. I am not sure.

Dr. Alexander: The patient had a basal cell car-

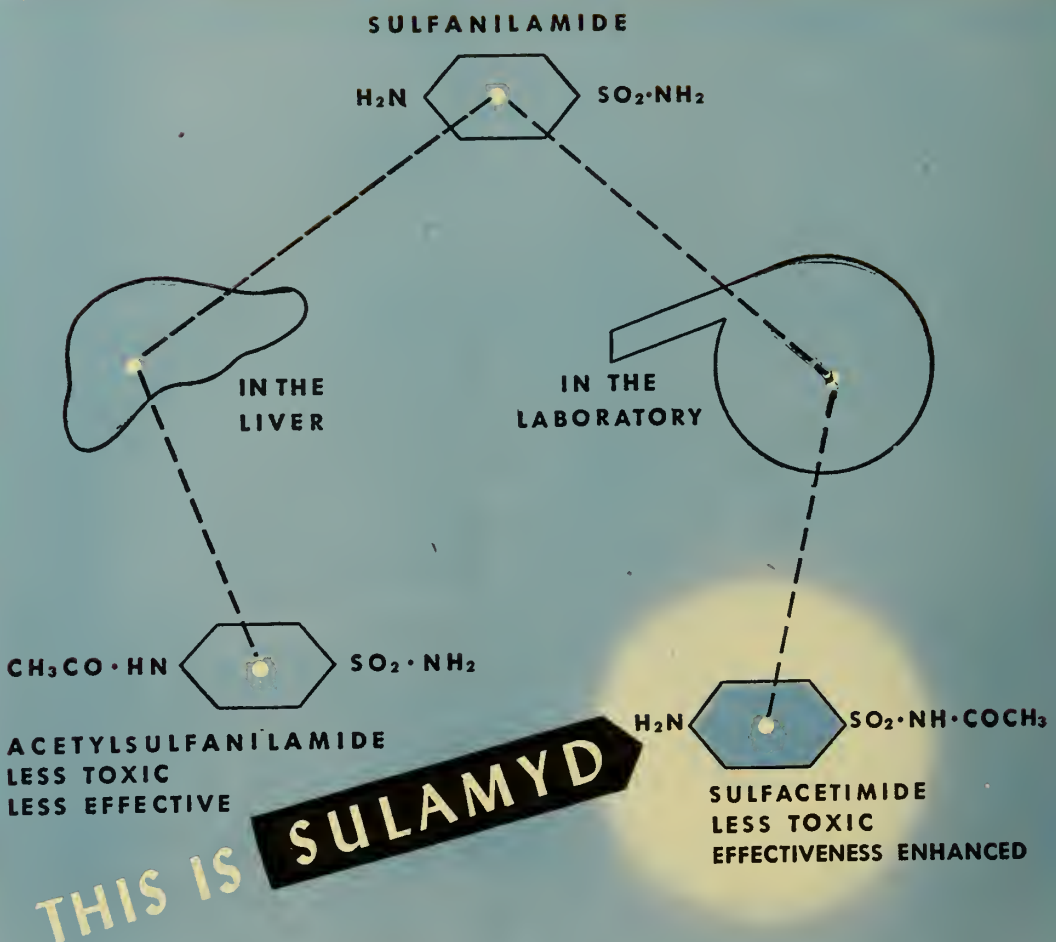
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*Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154

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cinoma of the face. Is there any probability that the condition would give any visceral manifestations, Dr. Scheff?

DR. HAROLD SCHEFF: It is generally a local lesion and does not metastasize.

DR. ALEXANDER: The question now is what will be found at autopsy. It is presumed that pneumonia will be observed, which will be active because of fever, a blood count of from 15 to 20 thousand, and all the signs of active infection. If the pneumonia had been cured, then we must assume that he had complications of pneumonia. If it had been controlled, it would be difficult to explain the fever and leukocytosis during the last day or two of life. There was pleural fluid, although it could not be aspirated. This is suggestive of empyema or fibrinous pleurisy. There was no evidence of endocarditis or of meningitis or of peripheral thrombosis. In reference to the kidneys, are we to expect that the kidneys will be materially compromised, Dr. Smith?

DR. JOHN SMITH: Yes. I think the patient had nephrosclerosis.

DR. ALEXANDER: I agree that the patient had considerable renal damage, and probably had it before admission to the hospital.

DR. WOOD: Do you suspect sulfonamide nephrosis?

DR. ALEXANDER: No. I think sulfonamide crystals will be found but I do not think sulfonamide nephrosis will be present. It is also improbable that the plasma and blood which had been administered had any effect upon the renal damage. What other findings are possible?

DR. WOOD: Arteriosclerosis in the coronary arteries on the basis of the electrocardiogram.

DR. MASSIE: It was an abnormal electrocardiogram. The patient was a 72 year old man and it would be supposed that he would have some coronary involvement. The electrocardiogram is the only evidence of coronary involvement, however.

DR. SCHEFF: An enlarged liver is another possible finding, with evidence of hepatitis because of the jaundice.

DR. ALEXANDER: In that case, if our discussion of jaundice is valid, we must assume that he had at least functional liver damage.

DR. GLASSBERG: There also may have been some destruction of the adrenal cortex.

DR. ALEXANDER: That is possible. Anything else?

DR. JOHN SMITH: I suggest a pulmonary infarct.

DR. ALEXANDER: In addition to that let us include pulmonary edema, which I believe to be the terminal event.

ANATOMIC DIAGNOSIS

Lobar pneumonia involving the lower lobe of the left lung.

Bronchopneumonia of the upper lobe of the left lung and middle and lower lobes of the right lung.

Fibrinous pleurisy, left (150 cc.).

Acute nephrosis.

Arteriosclerosis of the aorta and of the coronary, pulmonary, splenic, renal and mesenteric arteries, slight.

Healed infarct of the myocardium.

Focal fibrosis of the myocardium.

Arteriolar nephrosclerosis, slight.

Hypertrophy and dilatation of the heart (420 grams).

Thrombi in the tertiary branches of the pulmonary artery.

Recent and healing infarcts of the lower lobe of the right lung.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: The patient had cardiovascular renal disease and developed an acute infectious disease —pneumonia. The cardiovascular renal disease was characterized by arteriosclerosis, by enlargement of the heart, by nephrosclerosis, by a large healed infarct in the heart and numerous foci of fibrosis throughout the heart muscle, presumably on the basis of vascular disease. The evidence for the fact that the heart had failed is given by the presence of chronic passive congestion in the liver and spleen and by the presence of thrombi in the branches of the pulmonary arteries. Pulmonary edema was not a conspicuous feature.

The pneumonia was predominantly in the stage of resolution. Changes had occurred that would indicate that the pneumonia was no longer progressive and that it was resolving throughout most of the lung. I think the anatomic evidence, plus the fact that the blood count went up after treatment with chemotherapeutic agents, while the blood culture became negative after that treatment, would all indicate that the pneumonia was undergoing resolution. The bacteria were under control and the pneumonic exudate was being resolved.

In regard to the complications of pneumonia we found only a fibrinous pleurisy, which is found in at least 97 per cent of cases of pneumoccoccal pneumonia.

We can submit no evidence for the low blood count on admission. Sections of the bone marrow are rarely informative on this subject.

On the points raised by Dr. Holland of central failure and vasodilatation peripherally, we have no evidence to offer. This man did have a diseased heart in the sense that he had a healed infarct and numerous foci of fibrosis in the myocardium and a minimal degree of coronary arteriosclerosis. The heart was hypertrophic so that any agent that would bring about central cardiac failure would be more effective in this patient than in a young patient who developed lobar pneumonia.

The adrenal in pneumonia shows little change that cannot be found in many infectious diseases. There are definite degenerative changes in the adrenal cortical cells, especially those in the peripheral part of the adrenal cortex. This did not show anything other than the general change of the infectious diseases. However, from a functional standpoint, endocrine changes can occur rapidly in acute infectious diseases.

The patient did have a nephrosis. The kidney was large, soft and flabby and there were crystals of the sulfonamide drug in the kidney and in the pelves. There was considerable damage to the proximal convoluted tubules. I believe, therefore, that he had damage to the kidney from the sulfonamide drug of the toxic type, not of the obstructive type. Small blood vessels in the kidney were thickened and some of these vessels showed necrosis of the wall. This man had, anatomically, malignant nephrosclerosis.

DR. ALEXANDER: Dr. Moore, is it correct that the patient did have arteriolosclerosis but that it might not have bothered him if he had not received the sulfonamide drugs?

DR. ROBERT MOORE: The arteriolosclerosis was not of a high grade and I do not believe it would have bothered him if he had not developed pneumonia and received the sulfonamide drug.

DR. WOOD: It seems to me that this case illustrates one very practical point. With the newer agents now available, particularly penicillin, which do not injure the kidneys, we probably should refrain from using sulfonamide drugs in the treatment of acute infections in patients who show evidence of renal disease.

CASE 68

PRESENTATION OF CASE

A 64 year old physician entered Barnes Hospital on January 18 and died on January 27, 1945.

Chief Complaint.—Difficult urination.

Family History.—Father died at age 55 from a lung abscess.

Past History.—The patient was born in France and came to this country in 1907. There was little history of illness. In 1900 he had "tropical heart disease" in Africa from which he recovered com-

pletely. For years he had bilateral inguinal herniae, one of which was operated upon unsuccessfully. He complained of "acid stomach" for four or five months previous to admission. The systemic review was normal. He was a physician with a country practice and worked very hard.

Present Illness.—About two months previous to admission the patient developed a constant desire to urinate and it became increasingly difficult for him to empty his bladder. Urgency and frequency developed so that he urinated small amounts about every two hours during the day and every hour during the night. Some pain and burning developed but no blood was passed. His bladder evidently became more and more obstructed and he entered Barnes Hospital for relief.

Physical Examination.—Temperature was 38.5 C., pulse 100, respiration 18, blood pressure 126/84. The patient was a rather obese, dark-skinned, elderly man lying quietly in bed in no apparent distress. He was well nourished and developed. There was some puffiness beneath the eyes. The pupils reacted faintly to light. The upper teeth were replaced by dentures; the lowers were carious. The tonsils were moderately enlarged but not inflamed. The lungs were resonant on percussion. The breath sounds appeared to be normal. There were many coarse rhonchi heard throughout both lungs. The heart was not enlarged, the rhythm was regular and there were no murmurs or accentuations. A firm, mobile, tender mass was felt in the right flank. In the lower abdomen was a soft mass, evidently the bladder, extending from the symphysis to within two fingerbreadths of the umbilicus. The prostate was markedly enlarged and nodular. The right epididymis was enlarged. The extremities were normal and the reflexes physiologic.

Laboratory Findings.—Blood count: red cells 3,570,000, hemoglobin 11.5 gms., white cells 14,200, differential count: eosinophils 2 per cent, stab forms 7 per cent, segmented forms 74 per cent, lymphocytes 10 per cent, monocytes 7 per cent. Urinalysis: albumin trace, many white blood cells, occasional red blood cell. Blood Kahn reaction was negative. Nonprotein nitrogen was 26 mg. per cent, sugar 136 mg. per cent. Blood culture showed no growth.

Course in Hospital.—On the day following admission, a one-stage suprapubic prostatectomy was performed and sulfathiazole therapy was begun. After the operation, the patient's temperature rose to 39.7 C. It was somewhat lower on the first and second postoperative days but on the third day it reached 40 C. Drains were removed at that time and the patient was transferred from the genito-urinary service to the medical service. He appeared to be critically ill. He was dyspneic and had pitting edema over the sacrum. The lungs were full of moist rales but showed no other change. Inasmuch as the blood sulfathiazole level was but 4.3 mg. per cent, penicillin therapy was begun. An electrocardiogram revealed notching of the QRS complex. The ST segment was slightly elevated in lead I, intraventricular conduction time was .1 and there was one premature ventricular contraction. Impression of myocardial damage was recorded. The temperature continued elevated between 39 C. and 40 C. and the respiration rose to about 40 per minute. Considerable tenderness developed in both flanks and signs of consolidation appeared at the base of each lung. The patient became cyanotic and was placed in an oxygen tent. Digifolin was given intramuscularly until he had received 14 cat units within forty-eight hours. Sulfadiazine was administered and a blood level of 9.9 mg. per cent was attained. The course continued downhill. The patient became stuporous, pulmonary edema developed and he expired quietly.

Sections of the prostate removed at operation showed numerous focal abscesses. The glands were filled with polymorphonuclear cells. The process appeared to be suppurative but nonspecific in origin. Although no tubercles were seen, there were many cells which resembled Langerhans' cells. Desquamation of epithelium seen in many areas was suggestive of vitamin A deficiency. There was no evidence of malignant change. Interpretation was benign prostatic hypertrophy, acute inflammation and vitamin A deficiency.

CLINICAL DISCUSSION

Dr. Harry Alexander: This case is that of a 64 year old man who had a singularly normal past history except for an attack of "tropical heart disease" forty-five years previously. On admission to the hospital he had all the signs and symptoms of prostatic obstruction complicated by fever and leukocytosis, pus in the urine, and a tender mass in the right flank which descended with inspiration and presumably was the kidney. Therefore it appears that he had an acute infection of the urinary tract as well as the prostatic obstruction. What organism usually is associated with urinary tract infection, Dr. Harford?

Dr. Carl Harford: The colon bacillus could produce the pus in the urine as well as the renal infection.

Dr. Alexander: This man also had an epididymitis. How common is it for a colon infection to affect the epididymis?

Dr. Harford: I am not sure but I would say that it was uncommon.

Dr. Alexander: I was uncertain on this point myself and I checked with Dr. Wattenberg who agreed that it is uncommon for the colon bacillus to affect the epididymis. He thought that when the prostate had multiple abscesses as in this case and the epididymis was involved, the infection probably was due to a staphylococcus. This case was on the genito-urinary service and, because of the epididymitis, sulfathiazole was administered. The level of the sulfathiazole was never high but, after infection set in, sulfadiazine was administered up to a level of 9 mg. per cent. Penicillin was also given but none of these drugs were effective. Would this information influence your opinion on whether or not the organism was a staphylococcus?

Dr. Harford: The fact that the patient did not respond to chemotherapy does not help a great deal, because there are resistant strains of bacteria.

Dr. Alexander: Are they resistant to the first dose or do they become resistant later?

Dr. Harford: They are resistant to the first dose of both penicillin and the sulfonamide drugs.

Dr. Alexander: From the description of the pros-

tate gland removed at operation, it is evident that there were a number of small abscesses. Dr. Wood, do you believe that the causative organism was the staphylococcus or the colon bacillus?

DR. W. BARRY WOOD, JR.: I do not think we have enough evidence to say one way or the other. I do feel that it might be tuberculosis.

DR. ALEXANDER: That is a possibility. He had pulmonary lesions, rales in the chest on admission and fever. After the removal of the prostate, the bladder was opened with wide drainage and the fever rose. Following that, more pulmonary lesions developed, even to the point of consolidation. If these pulmonary lesions were part of a general infection, a diagnosis of tuberculosis would sound valid. Why do you postulate the diagnosis of tuberculosis, Dr. Wood?

DR. WOOD: Tuberculosis frequently involves the genito-urinary tract and a secondary infection usually occurs in the bladder which would account for the pyuria. It has been pointed out by Dr. Robert Moore that infections of the prostate often lead to miliary tuberculosis. After any operative procedure involving the prostate it is quite probable that there would be a rapid spread of the infection. The involvement of the epididymis would also be suggestive of tuberculosis.

DR. ALEXANDER: Dr. Goldman, how do you feel about the possibility of tuberculosis?

DR. ALFRED GOLDMAN: I think that gross examination of the bladder would give evidence of whether or not tuberculosis was present. There is a prostatic infection, an epididymitis and apparent involvement of the kidney. All of these are compatible with a diagnosis of tuberculosis.

DR. ALEXANDER: Benign prostatic hypertrophy was seen in sections of the tissue. From these sections a suggestion was made of vitamin A deficiency. Dr. Moore, will you explain that for us?

DR. CARL MOORE: In vitamin A deficiency metaplasia of the epithelium may be present, but with extensive infection, epithelial changes can not be attributed to a deficiency since the same lesion is frequently associated with inflammation.

DR. ALEXANDER: I was interested in that point because I have never heard of making a diagnosis of vitamin A deficiency from a section of the prostate. Dr. Olmsted, can you tell us more about this?

DR. WILLIAM H. OLMSTED: I do not know much about it. However, it is uncommon for a man of this age to have vitamin A deficiency.

DR. ALEXANDER: Dr. Wilson, you saw this patient and we would be interested in hearing your impression.

DR. KEITH WILSON: On admission, he had had a prostatic obstruction for about sixteen days. His abdomen was large, rounded and tense and we felt that the liver might be enlarged. We also thought that he had a urinary infection for which, first, sulfonamides and, later, penicillin were administered.

DR. OLMSTED: There is also the possibility of phlebitis.

DR. BARRETT TAUSSIG: Do you think cardiac failure was an important primary cause of death?

DR. ALEXANDER: Terminally, this patient certainly developed pulmonary edema and heart failure.

ANATOMIC DIAGNOSIS

Blastomycosis involving the lungs, adrenals, kidneys, periprostatic tissue, right epididymis, testicle and vas deferens and seminal vesicles.

PATHOLOGIC DISCUSSION

DR. MARGARET SMITH: The gross examination of the lesions in the lungs showed them to be closely studded nodules with an area of complete consolidation in the lower part of the right lung. The small lesions in the lung were compatible with miliary tubercles while the large area of consolidation was comparable to caseous pneumonia. However, it would be most unusual to have caseous pneumonia in a lung without cavities.

The lesions in the kidney, at first glance, might have

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been mistaken for tuberculous lesions, but at the time of gross examination there was a purplish red reaction around the nodules which is not usually seen in tuberculosis.

Upon microscopic examination, it was seen that the miliary foci in the lung varied considerably in character. Many of them were foci of pneumonia with the alveoli intact and the exudate in the alveoli consisting primarily of polymorphonuclear leukocytes. There were no cavities and the lesions in the lung did not show caseation. In all lesions there were the typical double walled cysts of blastomyces.

Part of the epididymis was completely destroyed. In the remaining portion, many polymorphonuclear leukocytes were seen in the tubules as well as many organisms.

In the heart there were several granulomatous lesions containing multinucleated giant cells and polymorphonuclear leukocytes. The organism was found in one of these lesions. The lesions were sparse throughout the heart and not definable in gross examination.

This case is one of systemic blastomycosis with involvement of the lungs, adrenals, kidneys, prostate, testicle, epididymis and seminal vesicles.

One of the points of interest in this case is the question as to whether or not the prostatectomy was responsible for the flare-up of this disease. I am not sure that I can answer that with any assurance. From the gross study of the lung, I think it is certain that the miliary lesions were the result of a hematogenous spread. The miliary lesions were evenly and closely studded throughout the lung and somewhat more numerous in the upper part of the upper lobe. That is the kind of distribution seen in miliary tuberculosis where there is hematogenous spread of the organisms. The area of consolidation with the thickened pleura over it was certainly present before the prostatectomy. The miliary lesions in the lung varied somewhat in character. Some resembled tubercles with definite giant cells and a surrounding fibroblastic reaction and obviously antedated the operation. Some of the lesions composed entirely of polymorphonuclear leukocytes, in which the alveolar walls did not seem to be involved, could perhaps be considered to have developed in the short time following the operative procedure. However, with blastomycosis, it is known that polymorphonuclear reaction occurs even in the late stages of the disease, although there would be more fibrosis and more thickening of the alveolar walls than was seen in this case.

SPECIAL ARTICLE

MISSOURI MEDICINE AIMS REHABILITATION OF INDIGENT PHYSICALLY IMPAIRED

THOMAS W. PARRY, ST. LOUIS

John Doe is a young man who lives in northwest Missouri. In 1943, he was physically impaired; many thought him hopelessly disabled. He earned exactly $101.67 that year, obviously a totally inadequate sum to provide him with food, clothing and shelter. So the taxpayers of Missouri chipped in to make up the difference. If the taxpayers were not too happy about it, the economic pain they suffered was insignificant as compared to the mental anguish of John Doe at the realization of being unable to pay his own way.

But today John Doe is a new man, because last year he earned, by his own hands, $1,618.00. It all came about when his case was brought to the attention of the State Board of Vocational Rehabilitation. Through medical science he was restored both physically and mentally;

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through vocational training, he was taught a skill by means of which he is earning his living. His complete rehabilitation cost the taxpayers of Missouri only $110.

John Doe is typical. He is one of 1,037 Missourians—897 men and 140 women—who were rehabilitated during 1943. His earnings of $101 before and $1,600 after rehabilitation represent the average for each of those thousand-odd people, just as the sum of $110 is the average per capita cost of restoring each of those persons to a normal, useful and happy life.

Dr. Robert Elman, associate professor of clinical surgery at Washington University School of Medicine and chairman of the Missouri Professional Advisory Committee on Physical Restoration, likes to tell the story about John Doe when skeptics question the economic, as well as humanitarian, benefits of Missouri's program for rehabilitation of the indigent physically impaired.

Under the leadership of Dr. Elman and an active group of physicians and other professional people who comprise his committee, a well-rounded program has been organized and is being implemented in Missouri. Function of the committee is to provide professional guidance to the State Board of Vocational Rehabilitation which administers the program, and of which Roy Scantlin, State Superintendent of Schools, is chairman. Joy O. Talley is state superintendent of vocational rehabilitation.

"Objective of the program," said Dr. Elman, who also is a member of the National Professional Advisory Committee for the Office of Vocational Rehabilitation in Washington, "is transformation of the indigent disabled to full or increased earning capacity. It provides for all means of physical restoration, including training and education, with emphasis on psychologic factors and vocational guidance. Obviously surgical and medical care is an important phase—but only one phase—of physical rehabilitation."

Although Missouri has had a rehabilitation program since 1920—when the Vocational Rehabilitation Act was passed—it was, by law, limited to vocational training and the provision of appliances. The comprehensive program now under way was made possible through passage in Congress in 1943 of amendments to the Vocational Rehabilitation Act.

"The new program," Dr. Elman explained, "opens up a tremendous field for rehabilitation of partially or completely disabled persons who have been unable to afford proper medical and surgical care. It represents our increasing emphasis on human values and the utilization of human resources. It becomes possible now to deal with individuals as individuals under expert medical care, including the services of specialists.

"Rehabilitation is a highly personalized service, requiring the human engineering approach to the problems of each disabled person. Age, education, mental and physical capacities, background, experience and self-determination are factors which must be weighed individually since no two persons are alike or react in the same manner to given situations. As a service of individual adjustment, vocational rehabilitation is effective insofar as it is based upon the abilities, interests and aptitudes of the individual, on the one hand, and his needs on the other."

Under Missouri's program, each individual who may apply, or be referred, for rehabilitation is given a general physical examination. His record is then reviewed by one of three medical consultants who advises the State Vocational Education Board as to the type and extent of restoration service required. The plan provides for hospitalization as well as medical and surgical care. An important feature of the plan is the utilization of existing facilities in providing hospital service. Of 104 hospitals replying to a letter sent them by Mr. Talley, only three indicated that they did not wish to participate in the program. Sixty-two expressed keen interest and the intention to participate, while the remaining thirty-nine were unable to take part in the program, chiefly because of inadequate facilities. A representative number of clinics throughout the state also indicated their intention to cooperate.

Fee schedules have been worked out by the executive committee and approved by the State Board. They apply to physicians, hospitals and clinics.

Members of the Missouri State Medical Association who are serving as medical consultants are: Dr. Herbert L. Mantz, Kansas City; Dr. Edward Massie, St. Louis, and Dr. David L. Enloe, Jefferson City.

"The opportunity afforded by this program to perform a service of social, spiritual and economic significance is challenging," Dr. Elman said. "But we can function for the greatest good only with the active cooperation of all members of the Missouri State Medical Association. Physicians have been advised by letter of the purpose, scope and method of operation of the program through the State Board of Vocational Rehabilitation. Additional information will be sent them periodically. Those who know of an indigent adult who is incapable of earning a living, or whose earning capacity can be improved, are urged to report the case to the State Board. It should be remembered that rehabilitation of these people includes not only physical, but also psychologic or psychiatric restoration as well as vocational help. Physicians who report these cases will be asked to give patients a physical examination—a service for which fees have been provided—and report their findings to the Board which, in turn, will refer them to one of the medical consultants for recommendations as to treatment."

Helpful assistance in advancing the Missouri program is being given by Dr. C. K. Himmelsbach of the United States Public Health Service. Dr. Himmelsbach, whose offices are in Kansas City, is medical consultant of Region VI of the Department of Vocational Rehabilitation.

While successful adjustment of an individual must view the individual as a whole, there are nine integral factors which are most frequently employed in the rehabilitation process. These are set forth as:

1. Early location of persons in need of rehabilitation to prevent the disintegrating effects of idleness and hopelessness.
2. Medical diagnosis and prognosis coupled with a vocational diagnosis as the basis for determining an appropriate plan for the individual.
3. Vocational counseling to select suitable fields of work by relating occupational capacities to job requirements and community occupational opportunities.
4. Medical and surgical treatment to afford physical restoration and medical advice in the type of service to be given and in the work tolerance of the individual.
5. Physical and occupational therapy and psychiatric treatment as a part of medical treatment where needed.
6. Vocational training to furnish new skills when physical impairments incapacitate for normal occupations, or when skills become obsolete due to changing industrial needs.
7. Financial assistance to provide maintenance and transportation during training.
8. Placement in employment to afford the best use of abilities and skills in accordance with the individual physical condition and temperament, with due regard to safeguarding against further injuries.
9. Follow-up on performance in employment to afford adjustments that may be necessary; to provide further medical care if needed; to supplement training if needed.

The urgent need for rehabilitation of the indigent physically impaired was underscored last year by Michael J. Shortley, director of the Office of Vocational Rehabilitation in Washington in testimony before a committee of the House of Representatives of the Congress of the United States. He cited Public Health Service figures to show that more than one million men between 15 and 64 years of age were in need of vocation-

al training and possibly medical care before employment could be obtained in business, industry or agriculture. Another group of 350,000 men he listed as being so severely impaired by disease or accident that, even after rehabilitation, employment in sheltered work, either in special shops or in the home, seemed the only possibility. Neither group, he added, included people with vision defects, although another 230,000 citizens of the United States come within the most generally accepted definition of blindness.

If proof be needed of the good the medical profession can do through its contribution to Missouri's rehabilitation program that proof was provided in Mr. Shortley's report for 1944.

Although the expanded program is just now getting in full swing, that report pointed out, there were in this country last year 269,000 disabled persons. Rehabilitation services were rendered to 145,000 of these, and rehabilitation was completed for 44,000 of them, with their placement in suitable employment. Of this number, 10,076 had never before been employed; 39,072 were not working at the time rehabilitation services began.

Before they were rehabilitated, total annual earnings of these 44,000 individuals were $6,283,200. After their rehabilitation they earned a total of $77,786,697 annually—more than a twelvefold increase. Each of the 44,000 persons rehabilitated into employment, Mr. Shortly declared, attests to the fact that almost every disability can be overcome and that there are individual talents which can be developed into skills.

Is it worthwhile?

There's the lad who's turning in a fine job of mechanical drawing in an eastern arms plant: he's using a prosthetic appliance in place of a good right arm.

And the middle-aged man, hopelessly injured in an automobile accident, robbed of a means of livelihood: he's grinding lenses for navy binoculars.

Or the two youngsters discharged from the Merchant Marine following spinal meningitis: apprentices of the printing trade in the plant of a southern newspaper.

And the Negro boy who operates his own shoe repair shop from a wheel chair.

When one helps to do things like that for the mind and spirit and body of a man one performs a service—not a service above and beyond the line of duty, but a service within the realm of high and satisfying privilege.

Perhaps that is why President Truman, recognizing its social value, has proclaimed the week of June 2, 1945, as National Rehabilitation Week.

PROFESSIONAL ADVISORY COMMITTEE ON PHYSICAL RESTORATION

* * *

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SPECIAL ARTICLE

MEDICAL PRODUCERS' COOPERATIVE

STANLEY W. INSLEY, M.D.

We are not concerned tonight with waters already over the dam, nor with directing invectives against any union or committees, and certainly have no intention to eulogize any political Messiahs.

We shall confine ourselves to a situation and not to a theory or emotional opinion. This situation, as of today, is that the old American pattern of medicine is past the proverbial crossroads. The distribution of medical care, as we and our fathers knew it, is apparently at the end of the road.

Tremendous economic and sociological pressures have become so all powerful as to force a changing pattern of human relationships all over the world and, naturally, upon our own country and customs.

There have developed, in this country, for example, the regulatory attempts against excessive corporate profits, new exchange and security regulations, bank deposit insurance, the fostering of collective bargaining, the raising of wage levels and the insistence of at least a start on some sort of social security.

A not too curious concomitant of these social changes has been the evolvement of class consciousness, with a remarkable growth and strengthening of workers' unions and of consumers' and producers' cooperatives.

Most individual laborers, farmers and professional men have very quickly appreciated the value of these unions and group cooperatives when dealing with outside interest, whether benevolent or hostile. It so happens, in our present complex economy, that a free society practically demands the existence of unions and cooperatives, else we may have either chaos on the one hand or dictatorship on the other.

Now, what as to medicine during these recent years of social changes? There has been a welter of criticism, some of it constructive and much of it unjustifiable. Most of the critiques are directed toward the lack of leadership shown from those in medical power who should have understood the doctor's problems, and yet be attuned to the times. Some of the accusations have had a rather ugly connotation.

All is not black on the medical front however, and I wish to point out a most remarkable fact; namely, that you and I here in Michigan have been developing the greatest "medical cooperative" of all times. It has been scarcely recognized as such except by a few.

I refer to Michigan Medical Service, which is the medical example of a producers' cooperative; a picture of Michigan doctors forging ahead in a public health effort and through the channels of free enterprise. Michigan Medical Service already offers medical catastrophe protection to more people than the combined efforts of all such organizations in the rest of America, and its potentialities for the public good are only now appreciated.

Michigan Medical Service has pioneered in its financial and organizational work and has come out of its early developmental stage as a sound financial and social structure. It can today offer an unparalleled service to corporations, the public or the government, with no less of freedom or initiative upon the part of its individual doctor members. This freedom and "wanting to do better" is in contrast to the usual high overhead costs and stultifying effects of the average governmental bureau.

I wish next to point out that it makes very little difference to a producers' cooperative whether it accepts equitable payments from a private corporation, a governmental unit or from some other consumers group. Multiple precedents have been established and it is simply an instance of one group being able to deal effectively with another group. An individual member of the producers' cooperative continues to act as a man of enterprise and free will, with adequate protection against capricious corporate or governmental rulings.

It should be emphasized, again and again, that working men of free will and initiative, protected from inequities, can do more for the public they serve than if laboring under industrial brow-beating or political red tape.

There is one last point; the effectiveness of any union, cooperative or association is based upon the nearly total enrollment of its potential members into actual memberships.

I will, therefore, take the liberty of making a personal energetic plea to the effect that more and more of us become participating members in Michigan Medical Service—the "doctors' cooperative."

Certain impending legislation and its accompanying pressures make it clear that we as individual doctors are threatened, and are beyond the period of "Do nothingism."

We shall, from here on, have to act and live in cooperation, or be split by our enemies and destroyed by our quislings.

Reprinted from the Journal of the Michigan State Medical Society, March 1945.

Have you signed the application to become a participating physician in Missouri Medical Service?

ABSTRACTS AND DIGESTS

ASTHMA

Spontaneous Pneumothorax, Massive Collapse, and Subcutaneous Emphysema Complicating Asthma. C. Elaine Field. Arch. Dis. Child. 18:197 (December) 1943.

A girl, aged 4 years and 2 months, who had asthmatic attacks since the age of 10 months, was admitted to the hospital, having had a head cold for three days, asthma for one day and a swelling of the neck the morning of admission. Physical examination showed subcutaneous emphysema and diffusely distributed harsh rhonchi as the principle findings. Roentgen ray of the chest showed extensive subcutaneous emphysema, displacement of heart to the left and a shadow suggesting collapse of the left lower lobe and a V-shaped shadow in the right upper lobe suggesting an inflammatory reaction. The subcutaneous emphysema disappeared during the next twelve days but the collapse of the left lower lobe persisted. One week later she developed a hard cough and a respiratory rate of 36. Examination showed displacement of heart to left, percussion dulness of left chest and hyperresonance of right chest, greater at a later time at the apex with faint breath sounds. Six hundred thirty-six cc. of air was aspirated from the second interspace anteriorly. Roentgen ray of the chest then showed a localized spontaneous pneumothorax in the right upper chest



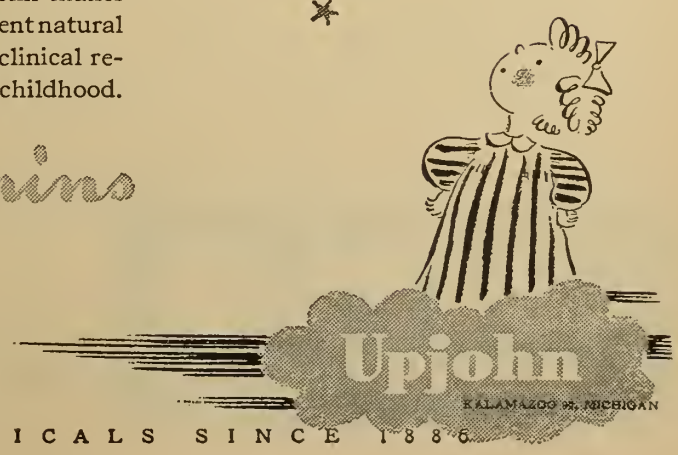
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Might as well expect the average child to get adequate vitamin D "by the light of the moon" as to depend wholly on the sun. Even in the summertime when the sun is shining many children are not as exposed to it as we might think. Cloud filtration and the uncertainty of adequate exposure even in such sunny areas as California[1] have led leading nutritionists to the conclusion that supplementation with vitamin D is essential. Essential as long as growth persists—through infancy, childhood and adolescence.

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1. Am. J. Dis. Child. **54**: 1227, 1937.



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and a collapse of the upper lobe and partial collapse of the lower left lung. A roentgenogram nineteen days later showed a normal chest.

A theoretic explanation of this sequence of events is that of nasopharyngeal infection, extension to the lungs, asthmatic episode causing rupture of alveoli in the inflammatory area, with tracking of the air to the hilum, up the mediastinum to the neck, face and chest, and a second asthmatic attack resulting in mucus plugging the bronchus to the left upper lobe and consequent collapse of the left upper lobe. This combined with the already existing collapse of the left lower lobe produced a rapid shift of the mediastinal contents to the left, resulting in rupture of recent inflammatory adhesions in the right upper lobe producing a localized spontaneous pneumothorax.

Spontaneous Pneumothorax Complicating Bronchial Asthma. Report of Two Cases and Consideration of Possible Mechanisms Involved in Its Production. Mason Trowbridge, Jr. Arch. Int. Med. 73: 460 (June) 1944.

The case of a 39 year old male, who had been having asthmatic attacks mostly in the spring and summer for nine years is reported. Cutaneous tests were inclusive, and emotional upsets, strong odors and infections of the respiratory tract were considered as causative factors.

At hospital admission he had had asthmatic attacks and a frequently repeated severe cough for two weeks, obtaining only transient relief from subcutaneous injections of epinephrine hydrochloride. Twelve hours before admission, there was a sudden onset of a definitely different type of dyspnea from that of the asthmatic attacks. There was no pain. The essential finding on physical examination, corroborated by roentgen ray examination, was a right sided pneumothorax. He was treated with subcutaneous injections of epinephrine hydrochloride, inhalation of oxygen and aspiration of pleural air. At the end of two weeks there was complete expansion of the right lung. There was no recurrence of the pneumothorax on several subsequent admissions to the hospital for asthma.

The second case was that of a 33 year old male who had had a cough throughout most of his life and asthmatic attacks for from five to six years, for which he had had several admissions to the hospital. Six days prior to the admission reported he had become increasingly short of breath during and subsequent to an asthmatic attack. Roentgen ray examination showed pneumothorax of the right chest.

The author cites the available experimental and clinical evidence concerning the mechanism involved in the production of spontaneous pneumothorax. There are two theories: (1) It is due to the rupture of an alveolus, the air escaping into the overlying perivascular sheath from which it can travel to the pleural space, to the mediastinum or to the retroperitoneal space. (2) It is secondary to the rupture of a subpleural bleb. This evidence favors the first theory.

Subcutaneous Emphysema During Asthma. Nathan Francis. Ann. Allergy 2: 342 (July-August) 1944.

Reports the case of a 31 year old male who had had bronchial asthma for twelve years with sensitivity to house dust. He was observed in the hospital twenty-four hours after the onset of acute asthma, with subcutaneous emphysema of the neck, cyanosis and dyspnea. Roentgen studies confirmed the diagnosis of subcutaneous emphysema.

Another case of a 13 year old female, who had had bronchial asthma all of her life with skin sensitivity to many allergies is reported. She was admitted to the hospital with acute asthma, following an acute upper respiratory infection. Roentgen ray examination confirmed the physical diagnosis of emphysema of the neck.

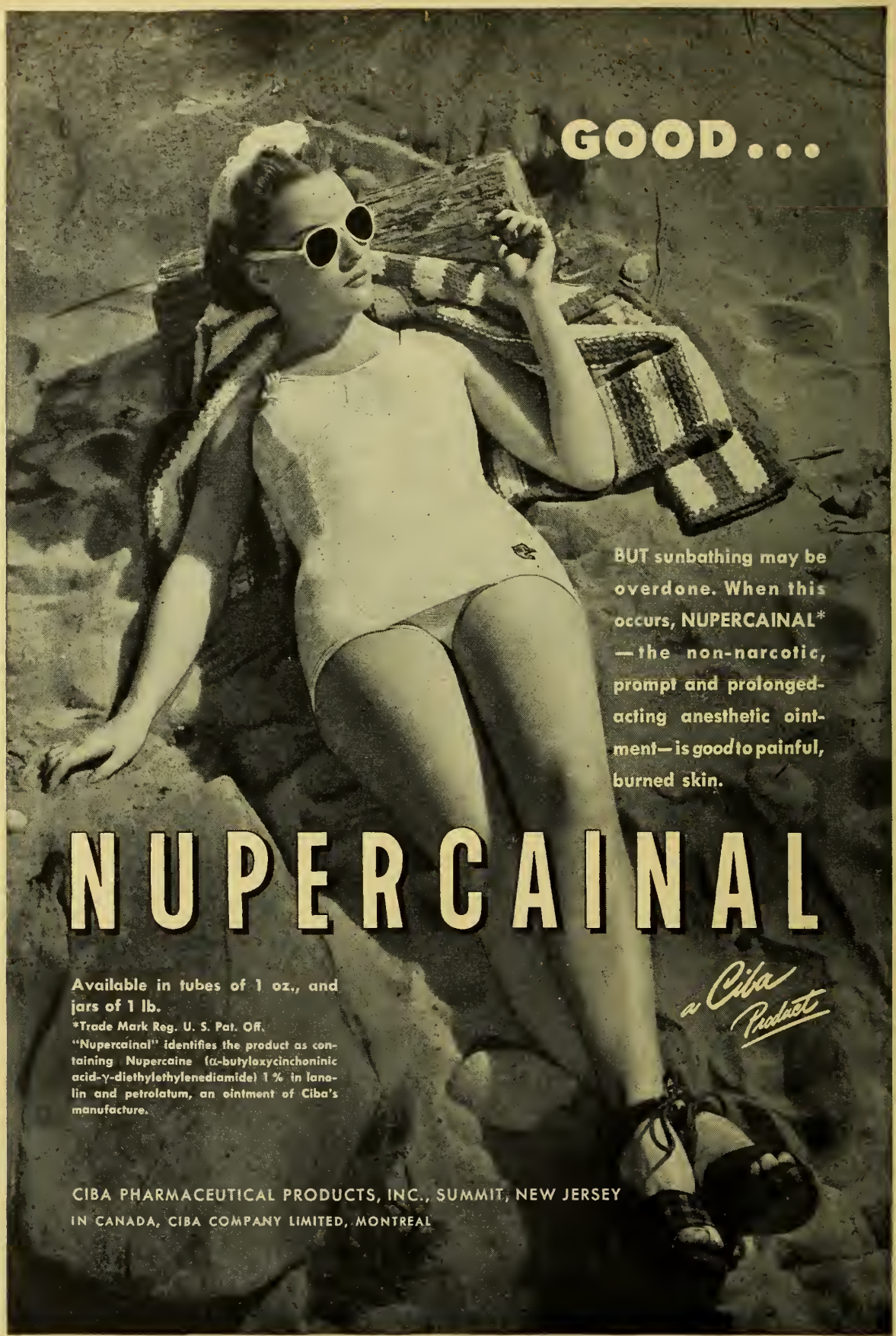
The subcutaneous emphysema in both cases was absorbed within ten days.

COMMENT

When one's attention is absorbed in relieving the wheezing dyspnea of status asthmaticus or in a patient who has had frequent asthmatic episodes, it is likely that the complications of the asthmatic attack escape one's memory. Undoubtedly, this is due to their apparent rarity. It is probable, however, that the frequency of these complications is greater than the medical literature indicates, for there are unreported single instances in the experience of various clinicians and if it were possible to have a roentgen ray examination of the chest of every episode of bronchial asthma there would be added the instances unrecognized by physical examination. The appearance of three reports of these complications in the medical literature during the last six months indicates a growing awareness of their existence.

Spontaneous pneumothorax possesses the more lethal potentialities. Although it may occur without pain, characteristically, the onset is with chest pain. It is more common on the left side and while more difficult to diagnose in the presence of pulmonary emphysema, the physical and roentgen ray findings are those of pneumothorax occurring from any other cause. One should suspect it when there has been a change in the character of the dyspnea.

The symptoms and signs of pulmonary atelectasis are dependent upon the amount of lung tissue involved, but are masked by those of associated pulmonary emphysema and obstructive breathing when they complicate the asthmatic attack. In general, when the atelectasis is partial or lobular, there may be neither symptoms nor signs and one assumes, rather than demonstrates, its presence; when lobar or massive, there will be dyspnea and cyanosis with impaired expansion, impaired resonance, increased fremitus, faint tubular or bronchial breath sounds, with heart, mediastinum and


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diaphragm moved to the affected side. The roentgen ray aids in confirming the diagnosis. When complicating bronchial asthma, the most likely etiology for both types is plugging of the bronchi by tenacious secretion. The middle and lower lobes are more frequently affected.

Subcutaneous emphysema complicating the asthmatic attack is relatively infrequent. It results from the rupture of an alveolus with air tracking along the sheaths of the pulmonic blood vessels to the mediastinum and thence to the body surfaces, appearing first in the supraclavicular area.

With the exception of spontaneous pneumothorax, for which, occasionally, the pleural air needs to be aspirated, these complications of the asthmatic attack do best with conservative management.

C. H. EYERMANN, M.D.

PENICILLIN IN DISEASES OF SKIN

Penicillin in Treatment of Certain Diseases of the Skin. I. A. Roxburgh; R. V. Christie and A. C. Roxburgh. Brit. Med. J. (April 15) 1944.

These investigators experimented with ointments and solutions of penicillin in seventy-five cases of assorted skin diseases caused by penicillin-sensitive organisms and which had been refractory to the usual measures. Since the work was done in England, they were handicapped by wartime shortages of penicillin, but their observations may be taken as a preliminary report on the indications for local applications of penicillin in certain dermatoses.

Sycosis vulgaris is usually very stubborn to the usual therapeutic measures including the sulfonamides. The authors treated fifteen cases, ranging from four months to eleven years in duration. The staphylococcus aureus was the usual organism found; streptococcus pyogenes was isolated in less than 5 per cent of the remaining cases. The authors used an ointment containing 400 units of sodium penicillin per gram in a water soluble base. From 250 to 4,000 units were applied daily. Two weeks treatment usually constituted a course. In two thirds of the cases, a second course was necessary or recourse was made to lotions used in the form of a spray twice daily (1,000 units of calcium salt per cc.). There were 33 per cent "cures." One "cured" case had been under the care of various dermatologists for eleven years, but was pronounced well after eight weeks of local penicillin therapy. Failures were due to (1) penicillin-fast organisms present, (2) local irritation from the drug (impurities?), (3) associated seborrheic dermatitis or focal infection, (4) stopping treatment too soon after apparent cure.

Impetigo responded well to the ointment, the average case healing completely within eight days. The usual infecting organism was the staphylococcus aureus with a few cases caused by S. pyogenes and a nonhemolytic streptococcus.

Eczema responded only if secondary infection was present. Relapses occurred from scratching or specific allergy. Most of the cases in this group were the atopic type which were not expected to respond to penicillin.

Clepharitis caused by the staphylococcus aureus responded very well to the ointment or to the local application of penicillin solution. There were a few cases of local irritation.

Otitis externa which in many cases is caused by streptococcus pyogenes reacted in all cases to penicillin ointment, except in the cases where a mixed bacterial flora was present (diphtheroids and coliforms).

There was no effect on the evolution of the individual furuncle but local application of the ointment was very successful in five cases of multiple furunculosis. The presence of scabies or impetigo of course brought about replases. The usual infecting organism was the staphylococcus aureus; Staphylococcus albus and Streptococcus pyogenes were found only occasionally.

Acne did not respond except temporarily in the pustular types in which staphylococcus aureus was found. The acne bacillus is not responsive to penicillin. The solution is preferred to the ointment for control of the secondary infection in acne.

Miscellaneous cases treated with penicillin locally included pemphigus and psoriasis which did not respond. The investigators probably felt there was no harm in trying.

Summary: Penicillin used locally in an ointment or solution will have a niche in the list of antiseptics and bacterial inhibitors. It probably will and should replace the sulfonamide ointments which are notoriously productive of local and general sensitization. Penicillin will be useful in certain types of heretofore resistant pyodermas but to expect miracles from it in all types of skin infections will only lead to bitter disappointment.

Comment: In general the indications for penicillin ointment and sprays are those of the sulfa local preparations. Penicillin solutions are alkaline and when used locally may produce a contact dermatitis. It is not advisable to use more than from 500 to 1000 units to the ounce of a water-soluable ointment base such as aquaphor or greaseless cream base.

NORMAN TOBIAS, M.D.

BOOKS RECEIVED

OPERATIONS OF GENERAL SURGERY. By Thomas G. Orr, M.D., Professor of Surgery, University of Kansas School of Medicine, Kansas City, Kansas. With 1396 Step-by-Step Illustrations on 570 Figures. Philadelphia: W. B. Saunders Company. 1944.

DIAGNOSIS AND TREATMENT OF ACUTE MEDICAL DISORDERS, THE. By Francis D. Murphy, M.D., F.A.C.P., Professor and Head of the Department of Medicine, Marquette University School of Medicine and Clinical Director of the Milwaukee County General Hospital and Emergency Unit, Milwaukee, Wisconsin. Philadelphia: F. A. Davis Company. 1944. Price $6.00.

PLASTER OF PARIS TECHNIC. By Edwin O. Geckeler, M.D., Associate Professor of Orthopedic Surgery, and Chief of the Fracture Service, Hahnemann Medical College and Hospital, Philadelphia. Baltimore: Williams & Wilkins Co. 1944. Price $3.00.



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JUNE, 1945

EDITORIALS

7TH WAR BOND DRIVE

The 7th War Bond Drive began May 14 and will extend through June 30. A message from the Five Star Generals is carried on the front cover of this issue in the hope that it will be a reminder to buy an extra bond during this drive.



Physicians are doing an excellent job of caring for civilian health, as statistics on health show, but they can also do a good job of helping to bring the war to a close by buying war bonds.

In many places organizations have undertaken a quota in the drive and it is suggested that physicians buy through their medical organization when the society has done this.

MORTALITY CONTINUES AT A LOW LEVEL

During the third full year at war, 1944, the mortality of the civilian population in the United States was maintained at a low level. According to the Metropolitan Life Insurance Company's statistics, based on its industrial policyholders, the death rate for 1944 was almost identical with the rate in 1943 and was only 4 per cent higher than the rate in 1942, the record year for low mortality.

The total mortality on this same group, with inclusion of the military deaths, was 6.2 per cent more than the rate for 1943, the increase for all white males from 20 to 24 being 150 per cent and for the ages of 25 to 34 an increase of 88 per cent.

The low rate in the civilian population was attained in spite of a widespread epidemic of respiratory conditions which reached its peak in January. In January the death rate from influenza and pneumonia was 122.9 per 100,000, the highest since the influenza epidemic in the spring of 1937. In September, the rates for both influenza and pneumonia were the lowest ever registered in that month.

The rate for tuberculosis established a new minimum; however, the rates at the childhood and adolescent ages showed a tendency toward increase and the decrease in the rate for the total group was the smallest since 1926.

The rate for the common communicable diseases of childhood showed a decline of 20 per cent in spite of a prevalence of scarlet fever above normal and an epidemic of measles. The death rate from diphtheria was identical with that of 1943 and that for whooping cough was decreased by 50 per cent.

The number of cases of meningitis continued high in 1944 but the mortality was comparatively low and the death rate for cerebrospinal meningitis remained identical with 1943.

Deaths caused by cardiovascular-renal diseases, which have caused almost one half of the total deaths from disease, declined 2.4 per cent, with only diseases of the coronary arteries and angina pectoris showing an increase. The death rate from cancer, which has increased steadily with the increasing of the older age groups, increased 1.7 per cent. The rate from diabetes declined 3.2 in 1944.

Death from accident was 53.6 per 100,000 as against 51.4 in 1943. Suicides declined in 1944 and homicides established a new minimum with a rate of 2.9 per 100,000 policyholders.

NEWS NOTES

Surgical Care, Inc., Kansas City, held its second annual meeting on May 18 as a dinner meeting at the Muehlebach Hotel. Mr. Mac F. Cahal, Executive Secretary of the American College of Radiology, Chicago, was the guest speaker.

Drs. William Merritt Ketcham, Cecil M. Kohn and Lawrence P. Engel, Kansas City, were guest speakers on May 2 at the last of five health and child development institutes held at the City Hall, Kansas City.

Dr. E. F. Hoctor, Farmington, addressed members of the Parent Teachers Association at Flat River on March 27. His subject was "Mental Health for Democracy's Children."

Dr. William V. McKnelly, Jefferson City, has been appointed physician at the State Penitentiary.

Winners in the thirteenth annual Essay Contest sponsored by the Woman's Auxiliary were: Billy Smith, R. F. D. No. 2, Chillicothe, first prize; Joyce Eckert, Kansas City, second prize; Margaret J. Young, Chillicothe; Barbara McFarlan, Independence, and Carolyn Ogden, Kansas City, won the three third prizes. The contest was entered by 176 girls and 54 boys.

DEATHS

Frankenberger, John Martin, M.D., Kansas City, a graduate of Kansas Medical College, 1893; honor member and former president of Jackson County Medical Society; aged 75; died December 26.

Lane, Hallie Hiram, M.D., Kansas City, a graduate of the University Medical College of Kansas City; honor member of Jackson County Medical Society; Fellow of the American Medical Association; aged 71; died January 24.

Stewart, Edward L., M.D., Kansas City, a graduate of the Kansas City Medical College, 1903; honor member of Jackson County Medical Society; Fellow of the American Medical Association; aged 69; died January 24.

Clendening, Logan, M.D., Kansas City, a graduate of the University of Kansas School of Medicine, 1907; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 61; died January 31.

Robinson, Ernest Franklin, M.D., Kansas City, a graduate of the University of Pennsylvania School of Medicine, 1896; honor member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 73; died February 6.

Greenwood, Victor H., M.D., Buffalo, a graduate of Medico-Chirurgical College of Kansas City, 1905, honor

member of the Dallas-Hickory-Polk County Medical Society; aged 82; died November 18, 1944.

Cuthbertson, William N., M.D., Liberty, a graduate of the University Medical College of Kansas City, 1899; honor member of the Clay County Medical Society; aged 69; died January 10.

Postlethwaite, Frank McClung, M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1913; member of the Jackson County Medical Society; Fellow of the American Medical Association; aged 62; died March 22.

Russell, Daniel R., M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1908; member of the Jackson County Medical Society; aged 65; died March 22.

Hodge, Russell Lowe, M.D., North Kansas City, a graduate of the Chicago College of Medicine and Surgery, 1912; member of the Clay County Medical Society; Fellow of the American Medical Association; aged 59; died March 27.

Mayfield, Amon A., M.D., Sikeston, a graduate of the St. Louis College of Physicians and Surgeons, 1891; member of the Scott County Medical Society; aged 76; died April 8.

Myers, Walter C., M.D., Savannah, a graduate of the Central Medical College of St. Joseph, 1897; member and former president of the Andrew County Medical Society; Fellow of the American Medical Association; aged 69; died April 17.

Meador, Harvey Lafayette, M.D., Clayton, a graduate of the National University of Arts and Sciences, 1913; member of the St. Louis County Medical Society; aged 64; died April 26.

Stowers, James E., M.D., Kansas City, a graduate of Johns Hopkins University School of Medicine, 1913; member of the Jackson County Medical Society; Fellow of the American Medical Association; for several years chairman of the Committee on Scientific Work of the Missouri State Medical Association; diplomat of the American Board of Surgery; aged 56; died April 30.

MISSOURI DOCTORS IN SERVICE

Lt. Col. William J. Shaw, Fayette, has been made a Colonel. Col. Shaw is now serving in the South Pacific as head of the 29th Evacuation Hospital.

★ ★

Major Jean J. Merz, St. Louis, has received the Purple Heart. He was wounded while stationed in Luxembourg during the German break-through.

★ ★

Captain Dar DeLos Stofer, Kansas City, chief of the medical service at the Corvallis Naval Hospital, has been awarded a commendation "For meritorious and efficient performance of duty as chief of medical service and later as executive officer of a fleet hospital in the South Pacific area from June 5 to December 8, 1944."

★ ★

Lt. Col. Brian Blades, St. Louis, was among a group of chest surgeons credited in a War Department report with improving the technic of thoracic surgery to an extent that many more lives are being saved than in the first World War and the crippling effects of chest injuries are being reduced 90 per cent. Col. Blades is in charge of the chest center at Walter Reed General Hospital.

★ ★

Th 911th Technical Service Unit, SGO, Detachment No. 1, Medical Supply Services School of the St. Louis Medical Depot, has been awarded the Meritorious Service Unit Plaque for "superior performance and outstanding devotion to duty in connection with administration and operation of the Maintenance and Repair Division of the Medical Supply Service School during the year 1944."

★ ★

Major Maxwell Glen Berry, Kansas City, has been promoted to a Lieutenant Colonel.

★ ★

An improved ambulance which will carry twelve instead of four litter cases in greater comfort has been developed at the request of The Surgeon General by th Ordnance Department in collaboration with the Army Medical Department. Twenty-five of these new ambulances are now carrying casualties from ships and planes to Army hospital.

★ ★

Harmon General Hospital at Longview, Texas, has been designated for the treatment of tropical diseases. The only other Army tropical disease center is Moore General Hospital at Swannanoa, North Carolina.

★ ★

Captain Paul R. Wright, Kansas City, has been awarded the Bronze Star for work as a Y-Force medical officer supporting a Chinese division in the Salween Campaign of Western Yunnan.

★ ★

Lt. Col. James Barrett Brown, St. Louis, chief of plastic surgery at Valley Forge General Hospital, Phoenixville, Pa., was promoted recently to the rank of Colonel. He went to the hospital in May 1943 after serving for a year as senior medical consultant in plastic surgery and burns in the European Theater of Operations.

★ ★

Lt. Col. Carl A. Schuck, St. Louis, has been promoted to the rank of Colonel.

★ ★

Lt. Col. John S. Poe, St. Louis, formerly with the Mobilization and Operations Division, Office of the Surgeon General, has been assigned overseas.

★ ★

Lt. Col. Oscar P. Hampton, St. Louis, Consultant in Orthopedic Surgery in the Mediterranean Theater of Operations, who has been on temporary duty at the Office of The Surgeon General, recently visited twenty-three general hospitals in this country where he studied fracture and orthopedic cases which had received initial and reparative surgery in the Mediterranean Theater of Operations to determine the effectiveness of the procedures used overseas in the light of the end results obtained here. Col. Hampton went overseas originally as Chief of Orthopedic Section of 21st General Hospital.

LEGISLATION

H. B. No. 138, introduced by all representatives from Jackson County and Dr. J. A. Gray of Atchison County, provides that the Board of Curators of the University of Missouri shall establish a four year school of medicine at the University of Missouri, the last two years to be established in Kansas City. After the bill had been killed by the House Committee on University, it was voted upon favorably by the committee of the whole House. The Speaker then appointed a committee of seven to investigate the facilities available in Kansas City and elsewhere and after this committee made its report, the House Committee voted "Do pass." The committee visited Kansas City May 10, 11 and 12 and according to reports were well impressed. The committee also visited Columbia to view facilities available there.

A meeting was arranged with the Board of Curators of the University of Missouri to discuss the medical school bill. Drs. A. S. Bristow, Princeton; Wallis

Smith, Springfield; H. B. Goodrich, Hannibal; J. W. Thompson, St. Louis, and Mr. Thomas W. Parry and Mr. T. R. O'Brien attended this meeting at which all members of the Board of Curators were present. The case for the school in Kansas City was presented in excellent fashion by all physicians present and the discussion which followed brought out that the Curators are deeply interested in the problem and welcomed the opportunity to meet with members of the Missouri State Medical Association. An invitation was tendered the Curators to visit Kansas City on May 20 or 27.

House Bill No. 206, introduced by Representatives J. A. Gray of Atchison County, and A. F. Wagner of Wayne County, is a bill to provide that anyone using the prefix "Doctor" or "Dr." shall affix suitable words or letters after his name designating the degree held or stating the type of practice the individual is engaged in. The bill applies to doctors of medicine, dentists, osteopaths, chiropractors and such. The bill has passed the House and has been reported "Do Pass" by the Senate Committee on Criminal Jurisprudence.

Senate Bills Nos. 85, 86, 87, introduced by Senator Smith of Buchanan County, and Senator Robinett of Wright County, are bills to provide that the salaries of the superintendents and assistant physicians serving in the various eleemosynary institutions of the state shall receive a higher rate of compensation for their services than is now being paid. These bills were all adopted by the Senate and are now in the House Committee on Eleemosynary Institutions.

House Bill No. 291, introduced by Representatives Whinrey of Lawrence County, and Thompson of Webster County, is an act to permit the Board of Curators of the University of Missouri to contract with other medical schools so that medical students who now transfer at the end of the second year would have their tuition up to $500 paid by the State of Missouri. This bill has passed the House and is now in the Senate Committee on Education.

House Bill No. 402, introduced by Representatives Still of Adair County, and Steinbacher of Jackson County, reenacts the present laws pertaining to the examination, certification and practice of osteopathic physicians and surgeons with certain changes. The changes appear in italics in the bill which is reproduced in full. The bill has been approved by the House Committee on Public Health and perfected:

AN ACT. To repeal Section 10044, Article 1, Chapter 62, Revised Statutes of Missouri, 1939, relating to the examining, certification and practice of Osteopathic Physicians and Surgeons in the State of Missouri, and to enact in lieu thereof a new section relating to the same subject to be known as Section 10044.

Be it enacted by the General Assembly of the State of Missouri, as follows:

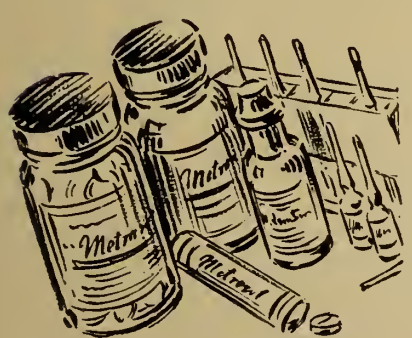
Section 1. That Section 10044 of Article 1, Chapter 62, Revised Statutes of Missouri, 1939, relating to the examining, certification and practice of Osteopathic Physicians and Surgeons in the State of Missouri, be and the same is hereby repealed and a new section enacted in lieu thereof, relating to the same subject, to be known as Section 10044 and to read as follows:

Section 10044. Before practicing osteopathy in the State of Missouri each person shall secure from the board of osteopathic examination and registration a certificate. Said person shall make application to said board upon a blank furnished by the secretary of the board upon request and said application shall be accompanied by a fee of fifteen dollars ($15.00). Said Fifteen Dollars ($15.00) shall be payment in full of said applicant of all fees to said board. This application accompanied by the fee shall be made to the secretary of the board on a form prescribed by the board giving, under oath, first, his or her name, age (which shall not be less than twenty-one years), and residence; second, the name of the school of osteopathy from which he or she graduated; third, the date of his or her diploma and satisfactory evidence that such diploma was granted on personal attendance and completion of the course of study in a college recognized as reputa-

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ble by the board, the requirements of which for matriculation must be a four-year high school diploma, or its equivalent, *and in addition thereto at least two years premedical training,* and wherein the requirements of said college are a four-year course of not less than nine months each in four separate years, except in case where applicant graduated prior to February, 1907, in which case it must be shown that the diploma was granted on personal attendance of four terms of five months each, also except where applicant graduated prior to 1918, and subsequent to 1907, from a college recognized as reputable by the board wherein the course was three terms of nine months each in three separate years. The board shall subject all applicants to an examination in the subject of anatomy, physiology, physiological chemistry, toxicology, pathology, diagnosis, hygiene, obstetrics, and gynecology, surgery, principles and practice of osteopathy, and such other subjects as the board may require: Providing, that the board may, in its discretion, dispense with an examination in any case where an osteopathic physician, regularly graduated from a reputable college of osteopathy, present a certificate issued on examination by a legally constituted board of any other state, territory, or District of Columbia, which is accorded only to applicants who have fulfilled equal requirements to those required in Missouri: Provided further, that the board may in its discretion dispense with an examination in case of an osteopathic physician who has been in osteopathic practice for five years, or more, in some other state, who has graduated from a college or school of osteopathy recognized by the board as a reputable college in good standing at the time of issuing said diploma and who is in good standing and good repute in the community where said applicant had practiced. The fee for an applicant for certificate without examination shall be twenty-five dollars ($25.00). The board is further empowered to charge a fee of five dollars ($5.00) in a case of an osteopathic physician who holds a Missouri certificate and asks for verification of his certificate to some other board in another state with which said applicant wishes to reciprocate. Be it further provided, that the board may in its discretion grant a temporary permit until the board's next meeting in case of an osteopathic physician making application for a certificate between the regular meetings of the board. The board shall issue to each applicant, who correctly answers not less than seventy-five per centum of the questions asked upon each subject of examination, a certificate granting him the right to practice osteopathy, *and the recipient may employ those means of diagnosis, prevention and treatment of diseases, disorders and infirmities of the human body upon which he has been examined,* and the board shall refuse a certificate to each applicant failing to pass. No certificates shall be issued without a majority vote of the board.

MISCELLANY

HEALTH CARE OF VETERANS IN MISSOURI

At the invitation of the Mayor of St. Louis, a group of citizens and representatives of various civic organizations met at the Soldiers' Memorial, St. Louis, on May 3. The following resolution was adopted by the group:

RESOLUTION ON THE HEALTH CARE OF VETERANS IN MISSOURI

WHEREAS, The care for the disabled Veteran, which is the largest of the postwar responsibilities of the nation, demands facilities for the maximum restoration of the



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largest number of Veterans in the shortest space of time, and

WHEREAS, The urgency of this responsibility demands that in facing it, precedent, politics, prejudices and concern for expenses should be set aside, and

WHEREAS, The health care of the Veterans demands not only hospitalization facilities but also increased and well prepared personnel, especially physicians, and numerous members of the auxiliary health-caring professions, and

WHEREAS, Every Veteran who, by virtue of his discharge, reassumes status, should have civilian rights restored to him as soon as possible, and

WHEREAS, Missouri's needs for increased hospital facilities for the care of the Veteran can be conclusively demonstrated and can be shown to be not only equitable to the people of this state but also promotional of the national welfare, and

WHEREAS, In the State of Missouri there can be made readily available to the Veterans of this state, the rich resources of professional personnel and professional service with which Missouri is endowed; therefore, be it

Resolved, By the General Committee representing patriotic, civic, hospital and medical interests and organizations which convened at the call of His Honor, the Mayor of St. Louis, as follows:

1. That adequate provision be made for the care of the disabled, the sick and the potentially ill among the approximately 400,000 Veterans of Missouri, men and women, who are, or will be, eligible at the conclusion of the war for care under the Veterans Administration;

2. That the Veteran should be given a choice, under administrative direction, regulation and necessary restriction, of the facility (hospital, institution, out-patient department or home care), in or through which he prefers to seek medical and hospital care, thus restoring to the Veteran, as far as possible, his civil right, but under Veterans' privileges, of choosing the locality where he wishes to be treated, the institution in which he wishes to be treated and the physician by whom he wishes to be treated; it being understood that, other things being equal, Veteran physicians should be preferentially selected to care for Veterans without impending the free choice of physicians by the Veteran.

3. That out of the fund of $500,000.00 recently authorized by Congress for the construction of new hospitals and additions to existing hospitals under the Veterans' Administration, there be appropriated immediately sufficient sums to meet the costs of the erection of a 400 bed hospital, inclusive of at least 100 beds for Women Veterans, as an addition to the general medical hospital at Jefferson Barracks; of a 300 bed hospital for tuberculous patients, inclusive of at least 50 beds for Women Veterans, as an addition to the present tuberculosis hospital at Excelsior Springs; and, in the St. Louis area, sufficient funds for the erection of a 500 bed hospital for tuberculous patients and a 500 bed hospital for neuropsychiatric patients, at least 100 beds in each of these hospitals to be set aside for Women Veterans, as well as a tumor clinic and a diagnostic center;

4. That adequate subsidies to be made available to properly accredited civilian hospitals and other health-caring institutions, both tax-supported and non-tax-supported, for the purpose of taking care of disabled Veterans who may choose such institutions for their medical and hospital care; and that arrangements also be made with those civilian institutions for the out-patient care of Veterans who may choose to avail themselves of such services;

5. That the General Committee assembled at the invitation of His Honor, Mayor Kaufmann, transmit this resolution to the appropriate members of both branches of the Congress of the United States as well as to other governmental officials.

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COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1945

(Societies Which Have Paid Dues for All Members and Date Placed on Honor Roll)

Perry County Medical Society, December 1, 1944.

Moniteau County Medical Society, December 19, 1944.

Camden County Medical Society, December 19, 1944.

Ste. Genevieve County Medical Society, December 22, 1944.

Dallas-Hickory-Polk County Medical Society, December 23, 1944.

Pulaski County Medical Society, January 2, 1945.

Scott County Medical Society, January 2, 1945.

Chariton County Medical Society, January 2, 1945.

Audrain County Medical Society, January 3, 1945.

Holt County Medical Society, January 9, 1945.

Dent County Medical Society, January 13, 1945.

Macon County Medical Society, January 15, 1945.

Mercer County Medical Society, January 15, 1945.

Webster County Medical Society, January 22, 1945.

Harrison County Medical Society, February 9, 1945.

Lincoln County Medical Society, February 10, 1945.

Morgan County Medical Society, February 12, 1945.

Carroll County Medical Society, March 12, 1945.

Christian County Medical Society, March 14, 1945.

Saline County Medical Society, March 15, 1945.

Callaway County Medical Society, March 26, 1945.

Henry County Medical Society, April 13, 1945.

Pettis County Medical Society, April 23, 1945.

Cass County Medical Society, May 4, 1945.

Stoddard County Medical Society, May 7, 1945.

SIXTH COUNCILOR DISTRICT

R. W. KENNEDY, MARSHALL, COUNCILOR

Lafayette County Medical Society

The Lafayette County Medical met in Higginsville, March 27. The session was spent in a round table discussion of problems confronting the doctors today.

The following officers were elected: President, Dr. W. A. Braecklein, Higginsville; secretary, Dr. W. E. Koppenbrink, Higginsville; censor, Dr. E. M. Moore, Higginsville; delegate, Dr. L. M. Garner, Jefferson City.

W. E. Koppenbrink, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

New Madrid County Medical Society

The New Madrid County Medical Society held its quarterly meeting in Portageville on March 22.

The following officers were elected: President, Dr. Samuel M. Sarno, Morehouse; vice president, Dr. Raymond C. Conrad, Portageville; secretary-treasurer, Dr. John J. Killion, Portageville; delegate, Dr. B. J. Allenstein, New Madrid.

Dr. Paul Baldwin, Kennett, Councilor, discussed Missouri Medical Service. A resolution was adopted that the Society support the plan as sponsored by the State Association with local option being left to the discretion of the individual physicians.

A resolution was proposed and a committee appointed to investigate the possibility of building a county hospital in New Madrid County as a postwar project.

John J. Killion, M.D., Secretary.

St. Francois-Iron-Madison-Washington-Reynolds County Medical Society

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met February 22 at the State Hospital at Farmington with the following members present: Drs. Dailey Appleberry, Rivermines; J. P. Yeargain, Irondale; Marvin Haw, Bonne Terre; Ben M. Bull, Ironton; F. J. Nichols, Farmington; W. Harry Barron, Fredericktown.

The following delegates and alternates were elected: St. Francois County, Dr. Emmett F. Hoctor, Farmington, alternate, Dr. G. L. Watkins, Farmington. Iron County, Dr. R. E. Harland, Ironton, alternate, Dr. Ben M. Bull, Ironton. Madison County, Dr. W. Harry Barron, Fredericktown, alternate, Dr. S. C. Slaughter, Fredericktown. Washington County, Dr. J. L. Thurman, Potosi, alternate, Dr. J. P. Yeargain, Irondale. Reynolds County, Dr. A. F. Bugg, Ellington.

John W. Hunt, Jr., M.D., Secretary.

THE COUNCIL

Meeting of March 3, 1945

Drs. H. E. Petersen, St. Joseph; H. B. Goodrich, Hannibal; J. W. Thompson, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; A. S. Bristow, Princeton; R. L. Thompson, C. E. Hyndman, Robert Mueller, Robert Moore, Carl F. Vohs, Mr. T. W. Parry, Mr. T. R. O'Brien, St. Louis, were present.

Dr. Baldwin moved that all officers with the exception of Councilors remain in office in compliance with Art. IX, Sec. 2 of the Constitution, "All of the officers shall serve until their successors are elected and installed." Further, that district meetings be held for the election of Councilors in the even numbered districts. Attention was called to the portion of Art. IX, Sec. 2, stating, "The delegates present from each councilor district shall meet on the morning of the third day of the Annual Session and elect the Councilor from that district." Thereupon the motion was changed to state all officers remain in office until the next annual meeting, which was passed. It was decided to contact all committees and ask that reports or requests be directed to the Council. It was decided to ask Dr. Neal to continue with the work of the Postwar Planning Committee.

Mr. Parry gave a brief report on the public relation work which was accepted upon motion. It was suggested that material obtained for the Postwar Planning Committee be put in available form.

After discussion by Drs. Goodrich, Petersen, Smith,

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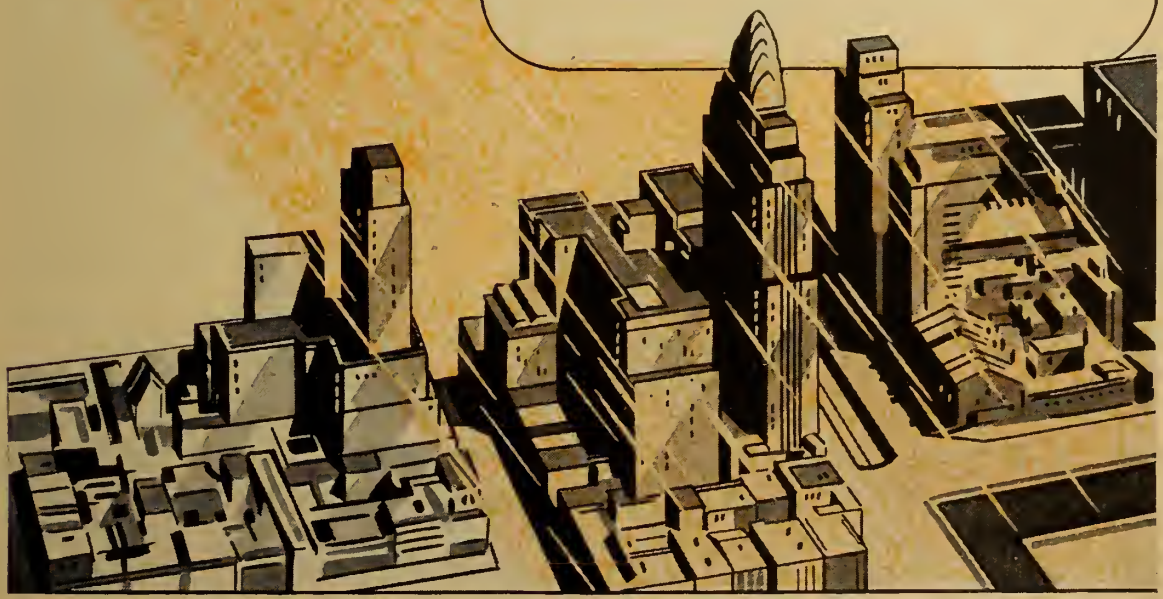
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Bristow, Mr. O'Brien and reading of a letter from Dr. Mantz, a motion to send a letter to the Board of Curators of the University of Missouri pointing out that Dr. Middlebusch did not ask advice of the Association was passed.

Mr. Parry discussed a booklet which the committee on the four-year medical school was planning. This was referred to the Budget Committee.

A letter was read from the American Cancer Society requesting that a booklet and a letter might go out under the name of the Missouri State Medical Association to members, the Cancer Society to take care of the expense. Upon motion it was decided to tell the Society that the Association would be glad to cooperate.

Mr. O'Brien reported on the work of the Community Health League. Upon motion, the following committee was appointed to work with the Community Health League on work in connection with the new Constitution: Drs. J. W. Thompson, Goodrich, Mantz, Mueller. The health commissioner office of the state was discussed and upon motion, this was referred to the Community Health League.

Dr. Robert Moore requested that a committee be appointed to study a biopsy service in the field of cancer, to include two pathologists, one surgeon and one member of the Cancer Commission. Upon motion the chairman of the Council was instructed to appoint such a committee.

Dr. Robert Moore discussed the situation on the medical examiner, pointing out that the coroner's office is left out of the new Constitution. He suggested legislation to provide a medical examiner commissioner with seven assistant examiners, with assistant district examiners to do autopsies and in each county a deputy to determine if medical examination is necessary. Upon motion this plan was endorsed by the Council.

Dr. Vohs gave a brief report on Missouri Medical Service which was discussed by Drs. Mueller, Thompson, Hyndman, Petersen, Goodrich and Baldwin. It was moved and passed that the Council ask the Board of Trustees to recommend to the Executive Committee that the Executive Secretary of the Missouri State Medical Association be appointed Executive Secretary of Missouri Medical Service.

Upon motion by Dr. Mueller it was decided to recommend to the Committee on the four-year medical school, that legislative hearing be held off until full information is available and that the committee meet immediately for the purpose of assembling material.

The Treasurer stated that the audit of the books of the Association would be published in the April issue of THE JOURNAL. The report was accepted.

The Budget Committee recommended that $1,000 be appropriated for the booklet for the four-year medical school.

Meeting of April 21-22, 1945

Drs. H. E. Petersen, St. Joseph; H. B. Goodrich, Hannibal; J. W. Thompson, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; H. L. Mantz, Kansas City; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; R. L. Thompson, St. Louis; C. E. Hyndman, St. Louis; A. S. Bristow, Princeton; Robert Mueller, St. Louis; Mr. T. R. O'Brien, St. Louis; Mr. T. W. Parry, St. Louis; Mr. W. H. Bartleson, Kansas City, were present. Dr. E. C. McGavran, St. Louis, and Dr. J. C. Willett, St. Louis, attended the afternoon session.

Dr. Goodrich moved that the dues of physicians returning from military service be remitted for the first year. Dr. Mantz amended the motion to give the physician an option of being carried on military status with the society for a year without right to vote or paying his dues. The amendment and the motion were passed.



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From where I sit *by* Joe Marsh

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Everybody kids Sober Hoskins about his name. Of course, they allow that it's appropriate. Sober never drinks anything stronger than a glass of beer. And a harder worker in the fields there never was.

According to Dr. Walters, who brought Sober into the world, "Sober's dad named him 'Sober' because he looked that way when he was born. Like he called his daughters 'Gay' and 'Prissy.' And it's had its effect on all of them," the doctor adds with a chuckle. (Prissy is the old maid in the Hoskins' family.)

From where I sit, Sober's dad had the right idea. Naming children after virtues is a fine old American custom. Look at the names of our pioneers and pilgrims: Faith, Pious, Charity, Hope, Ernest.

Maybe we should use such names more often. And one I'd like to add is "Tolerance." If we all had Tolerance for a middle name, and lived up to it, we'd have a better, happier world.

Joe Marsh

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Mr. O'Brien discussed the schools in Missouri which are accredited by the Department of Education which include proprietary schools, such as chiropractic schools. After discussion by Drs. Goodrich and Mantz it was moved that a letter be sent calling attention to the fact that returning soldiers will be under pressure from proprietary schools; that this also should be brought to the attention of the Governor and the American Legion. Passed.

Dr. Hyndman presented a report of a bill from an attorney who represented Dr. T. S. Blakesley of Kansas City in a malpractice suit. The estate of Dr. Blakesley has made no request. It was moved that the Committee proceed in accordance with the by-laws, that attorneys not be paid. The motion was passed.

A letter was read from Dr. M. D. Overholser, Chairman of the Committee on Health and Public Instruction, inclosing a letter from J. W. Burch, Director of the Extension Service of the College of Agriculture of the University of Missouri requesting cooperation in promoting health work in rural areas. This was discussed by Drs. Bloom, Mantz, Petersen, Goodrich and Kennedy. It was moved that the Committee be assured of cooperation and it be recommended that the Committee work out detailed plans with the Extension Service.

A report of a meeting of the Committee on Infant Care on February 10 was presented and approved.

A letter was read from Dr. F. H. Ewerhardt, chairman of the Committee on Physical Therapy, requesting that the name of the Committee be changed to "Committee on Physical Medicine." This was referred to the Committee on Constitution and By-Laws for action.

Mr. Parry gave a brief report on the public relations work that had been done, especially on the four-year medical school, the essay contest and Missouri Medical Service. He stated that the survey made by the Post-war Planning Committee was tabulated and the Council should decide what use would be made of the material.

The fact that there had been little material on the four-year medical school in the St. Louis papers was discussed and Dr. Bloom appointed Dr. J. W. Thompson, Mr. O'Brien and Mr. Parry as a committee to call on St. Louis newspapers.

Mr. O'Brien discussed the following bills that are before the Legislature: S.B. 103, H.B. 185, H.B. 206, Senate Bills Nos. 85, 86, 87; H.B. 280, H.B. 291.

H.B. 280, relating to county health units sponsored by the Farm Bureau, was discussed by Drs. Goodrich, Mantz, Petersen and Bohrer, and Mr. Bartleson. It was decided that Mr. O'Brien should talk further to the endorsers of the bill in an attempt to have definitions more specific.

After presentation by Dr. Mantz of the need of an advisory committee to lay groups to make information on hospital construction available to communities and groups who wish to increase hospital facilities, the following committee on Hospital Construction was appointed: Drs. Kennedy, chairman, Bohrer, Baldwin, Petersen, Smith, Bloom and Goodrich.

Upon motion by Dr. Mantz that a committee of five be appointed, two from the western section and three from the eastern section, as an overall committee for the two service plans in the state, the following committee was appointed to be subject to the approval of the Board of Trustees of the two plans: Dr. Bloom, chairman, Dr. Mantz, Dr. Lockwood, Dr. Vohs and Dr. J. W. Thompson.

Dr. Mantz stated that it was the intention of Surgical Care Inc. of Kansas City to issue a contract identical with that of Missouri Medical Service which would be sold in the counties located in northwest Missouri and asked for the approval of the Council. On motion this contract was approved.

After discussion and upon motion of Dr. Smith that a committee be appointed to work with communities

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The quotation which heads this page provides, out of the author's own experience, striking testimony to the dramatic value of Benzedrine Sulfate in the relief of simple depression, with its associated symptoms of anhedonia, chronic fatigue and retardation.

*Reiter, P. J., Experience with Benzedrine, Ugeskr. f. laeger, 99:459-460, 1937.

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to obtain scholarships for medical students from Missouri, the following committee was appointed: Dr. Smith, chairman, Dr. Bohrer and Dr. Petersen.

Discussion of the Board of Public Health and Welfare provided for in the new Constitution was opened by Mr. O'Brien who introduced Dr. E. G. McGavran, Health Officer of St. Louis County. Dr. McGavran gave an outline of a plan for the Department of Public Health and Welfare and stated that it was being sent to twenty-eight organizations for their approval. Dr. J. C. Willett, Director of Laboratories, City of St. Louis, presented an outline for the strictly health phase of the department and stated that it was his opinion that the health phase should not be under the jurisdiction of a lay board. After considerable discussion, upon motion by Dr. Baldwin, seconded by Dr. Denny, it was decided it be left to the committee which had been appointed for that purpose, adding Mr. O'Brien to the committee.

Sunday, April 22

Drs. Petersen, Goodrich, J. W. Thompson, Denny, Bloom, Kennedy, Smith, Bohrer, Baldwin, Bristow, Hyndman, Mueller, Mr. O'Brien, Mr. Parry and Mr. Bartleson were present. Col. Curtis H. Lohr attended the latter part of the meeting.

It was agreed that delegates to the American Medical Association should be considered as other officers and be carried over and that the same delegates as last year be reported to the A. M. A.

The following members eligible for Affiliate Fellowship in the A. M. A. were approved for recommendation to the A. M. A.: Drs. W. H. Becker, Carl E. Dudley, E. W. McBratney, St. Louis; John H. Armstrong, Kirkwood; Otto W. Koch, Ballwin; R. B. Denny, Creve Coeur.

The question of the installation of the President-Elect and whether or not it was constitutional was discussed by Drs. Goodrich, Smith, Petersen, Bohrer, Hyndman and Denny. Upon motion it was decided that Dr. Bristow should be installed as President. Colonel Lohr presented the gavel to Dr. Bristow.

Dr. Bloom stated that he felt he had served long enough as chairman of the Council. Upon motion he was reelected as Chairman and Dr. Goodrich as vice chairman.

After discussion it was decided that the Association should buy bonds, the amount and type to be at the discretion of the Treasurer.

Dr. Mueller read a letter from Dr. Harvey Howard representing the American War Dads giving a plan for returning veterans to be cared for in civilian hospitals with the hospitals being compensated as well as the physicians. After discussion by Drs. Petersen, Bristow, Hyndman, Goodrich, Kennedy and Mr. Bartleson, it was referred to the Committee on Postwar Planning.

W. A. BLOOM, M.D., Chairman.

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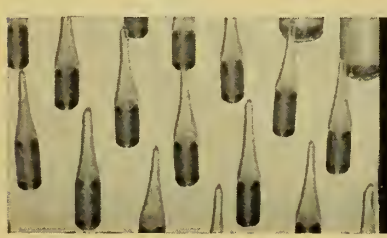


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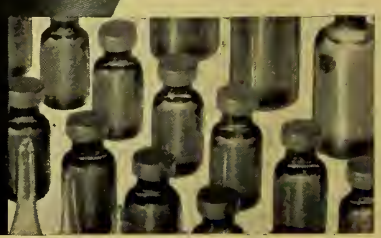
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BOOK REVIEWS

FERTILITY IN WOMEN. Causes, Diagnosis and Treatment of Impaired Fertility. By Samuel L. Siegler, M.D., F.A.C.S.; Attending Obstetrician and Gynecologist, Brooklyn Women's Hospital; Attending Gynecologist, Unity Hospital; Assistant Obstetrician and Gynecologist, Greenpoint Hospital; Attending Sterility Clinic, Greenpoint Hospital; Consultant in Gynecology, Rockaway Beach Hospital. With a Foreword By Robert Latou Dickinson, M.D. 194 Illustrations Including 40 subjects in full clolor on 7 plates. Philadelphia: J. B. Lippincott Company. 1944. Price

This volume is issued simultaneously with "Fertility in Men," by Robert S. Hotchkiss.

It is a most complete study of causes, diagnosis and treatment of impaired fertility in women. Dr. Siegler is a Brooklyn gynecologist and has condensed and clarified vast amounts of the overflowing literature on this topic.

Throughout the text the author stresses the necessity for this bilateral male and female approach in contrast to the now obsolescent unilateral approach. Regard for practical application in the management has been kept in mind.

The author had presented the complete manuscript for review to two competent and recognized conservatives, Engle and Folsome.

Hartman of Hopkins approved his chapter on physiology of the sex cycle and Hamblen of Duke advised on the chapter "Treatment of Ovarian Imbalance." He has done an immense task well; his chapter topics are timed and interwoven carefully; his technics are well described, corrected to the moment in progress, yet not belabored nor overextensive. His criticisms are gentle, his enthusiasms are well moderated.

In the controversial therapeutic field of endocrine therapy his preliminary diagnosis is complete and emphasized and his advice tinged with gentle sorrow rather than cynicism. His approval of roentgen ray therapy is guarded but the results reported are his best.

It would be impossible to prepare a more complete, though streamlined, guide book to the study than he has done. In these days of increasing interest in such studies with the pitiable demands of many more patients for such guidance, this volume is a must for those accepting these cases. A. B. S.

FERTILITY IN MEN. A Clinical Study of the Causes, Diagnosis, and Treatment of Impaired Fertility in Men. By Robert Sherman Hotchkiss, B.S., M.D., Lt. Comdr., (M.C.) U. S. N. R. (on active service); Assistant Professor of Urology, New York University Medical College; Instructor in Surgery (Urology), Cornell Medical College; Assistant Visiting Attending, Department of Urology, Bellevue Hospital; Assistant Visiting Attending in Surgery (Urology), New York Hospital; Chief of Urological Clinic, New York University Medical College Clinic. With a Foreword By Nicholson J. Eastman, M.D., Chairman, Editorial Committee, National Committee on Maternal Health Professor of Obstetrics in Johns Hopkins University; Obstetrician-in-Chief to the Johns Hopkins Hospital. 95 Illustrations. Philadelphia: J. B. Lippincott Company. 1944. Price

This book is published simultaneously with *"Fertility in Women"* by Samuel L. Siegler. The purpose of the book is to acquaint the medical profession with the field of male fertility.

The subject is well covered from general considerations as to the need for it, through sufficient review of the anatomy concerned, broad discussion of spermatozoa, their metabolism and chemistry and morphology, methods of appraisal of semen and, lastly, treatment of the unproductive male.

The author has used a large bibliography and has expressed himself freely in evaluating the studies of others in male sterility.

A series of case studies is presented, complete in each instance, illustrating various deficiencies and present methods of diagnosis and therapy. This reviewer wished there had been more of them.

A summation and appraisal is made of the endocrine products, their indications for use and a list of products available.

The book is well balanced, enjoyable and easy to read. The emphasis placed on practical application should be of great value to the profession, and a long neglected subject has been correlated and clarified in its having been written. D. A. J.

SURGICAL DISORDERS OF THE CHEST. Diagnosis and Treatment. J. K. Donaldson, B.S., M.D., F.A.C.S., Major, Medical Corps, Army of the United States; Diplomate American Board of Surgery; Associate Professor of Surgery and In Charge of Thoracic Surgery, University of Arkansas School of Medicine. Illustrated with 127 Engravings. Philadelphia: Lea & Febiger. 1944 Price $6.50

This book has been written primarily for the general practioner, general surgeons and medical students. It is not a detailed voluminous study of disorders of the chest but is a concise treatise, clearly and briefly written on the more common disorders that one might encounter, particularly the general practioner. The advances in medicine in the last decade or so have been so rapid that many men have been lost by the wayside so that there is a general feeling existing that such diseases of the chest really belong to the category of the specialist. This book is written with the purpose in mind to overcome this deficiency and make something still practical in the hands of the practioner. This book is written in typical textbook fashion with the presentation of the subject, etiology, pathology, treatment.

The first portion of the book deals with traumatic injuries that one might encounter in the chest wall and then turning to infections of the chest wall in general, with specific emphasis on tuberculosis of the lung and its complications as far as the chest is concerned. There is little said about the surgical technic although in certain parts brief mention of technic is given.

This is a book for the general practioner in offering him some guide in diagnosis, treatment and therapy. A. E. U.

SYNOPSIS OF NEUROPSYCHIATRY. By Lowell S. Selling, Sc.M., M.D., Ph.D., Dr. P. H., Director, Psychopathic Clinic, Recorder's Court, Detroit, Michigan; Associate Attending Neuropsychiatrist, Eloise Hospital; Adjunct Attending Neuropsychiatrist, Harper Hospital. St. Louis C. V. Mosby Company. 1944. Price $5.00

This book presents, in outline form, the various disorders, neuroanatomy, neurophysiology and the like. It is questionable whether this form is the best or even desirable with these subjects. Simple statements may convey a better idea to the reader than collections of details. Certainly, like most works on these matters, an attempt is made to cover too much with the result that no one aspect is adequately dealt with and in some instances the effect is positively misleading. This is particularly true of psychiatric conditions. Another result of condensation is that of really vital omissions. Thus the use of tryparsamide in paresis is not mentioned and nowhere is the part of this valuable drug adequately given. Perhaps the book is as satisfactory, however, as any of this type can be. L. B. A.

ANALYSIS AND INTERPRETATION OF SYMPTOMS, THE. Edited by Cyril M. MacBryde, M. D.; Paul B. Beeson, M.D.; Richard H. Freyberg, M.D.; Edwin F. Gildea, M.D.; Sara M. Jordan, M.D.; Sidney A. Portis, M.D.; Leon

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Schiff, Ph.D., M.D.; David M. Skilling, M.D.; John R. Smith, M.D.; Harold G. Wolff, M.D.; Philadelphia: J. B. Lippincott Company. 1944. Price

Differential diagnosis always makes attractive and absorbing reading; the detective story of medicine. Ten writers on ten different subjects try to cover the ground in this rather small book without going as far afield as do the more bulky volumes. Attempt is made to explain the symptom in terms of anatomy and physiology through the varying, even conflicting, views of the more authoritative investigators. As the book goes to the practitioner in general medicine, it seems the explanations at times are complex, understandable only by the specialist in that particular field. Fascination of the subject and smooth continuity of presentation make this an uniquely interesting and worthwhile work. L. S.

RANDOM OBSERVATIONS

By a Roving Reporter

The pressure of modern war, in contrast with life in peace time, is well shown in the figures for CDD's in the Army. In the first six months of 1944, 48 per cent of discharges were for neuropsychiatric disorders. It should be emphasized that most of these will be able to adapt themselves to a nonmilitary environment.

Medical literature passes through cycles. We are now in the period of penicillin. Most journals have one or two papers on the use of penicillin in this or that disease. The entire gamut of disease must be explored. When the end is reached, any cycle will have started.

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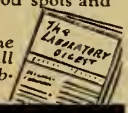
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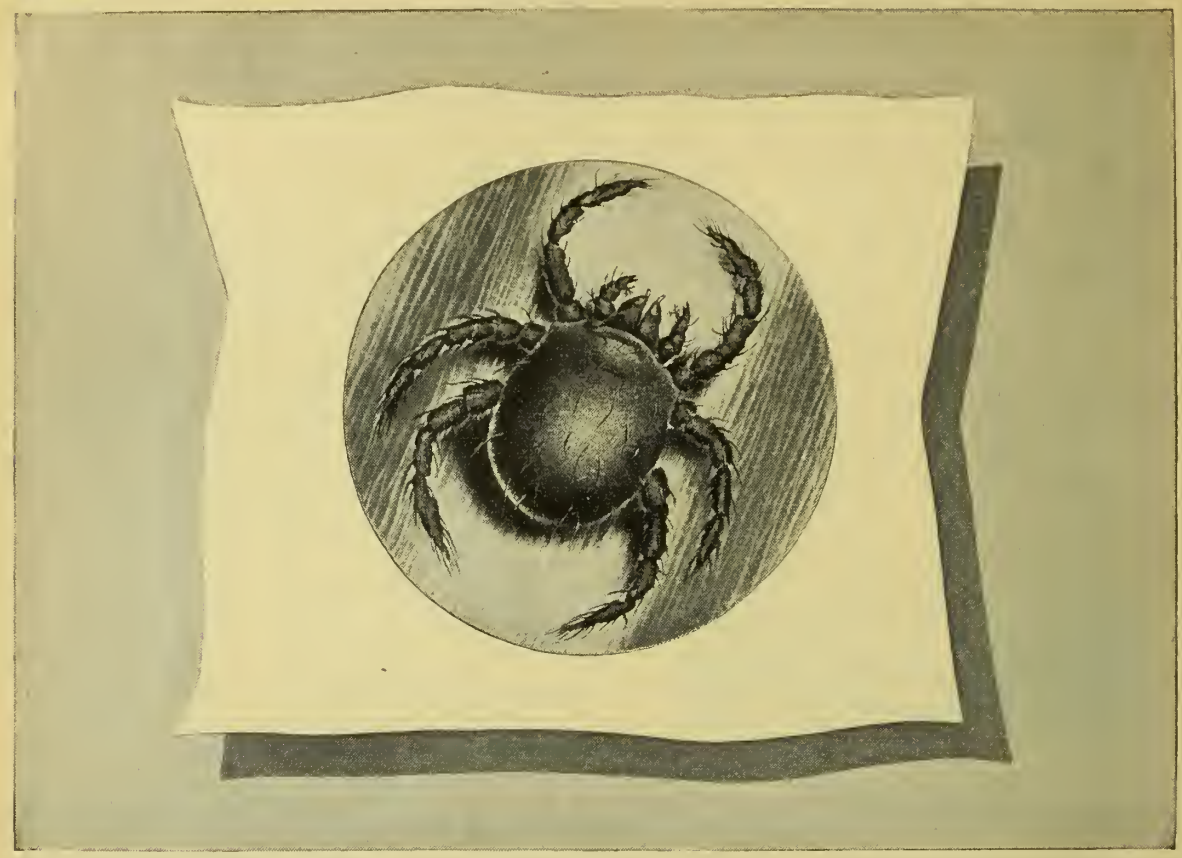
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*Romeo, Z. J.: Sulfur and Soap as Effective Prophylaxis Against "Chiggers" (Red Bugs) in the Army, Mil. Surgeon, *90*:437-439 (April) 1942.

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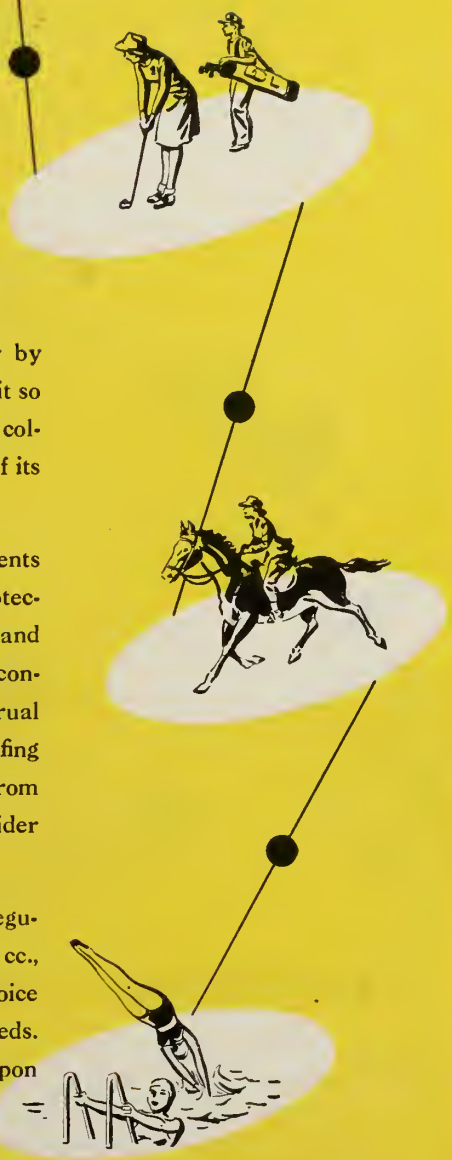
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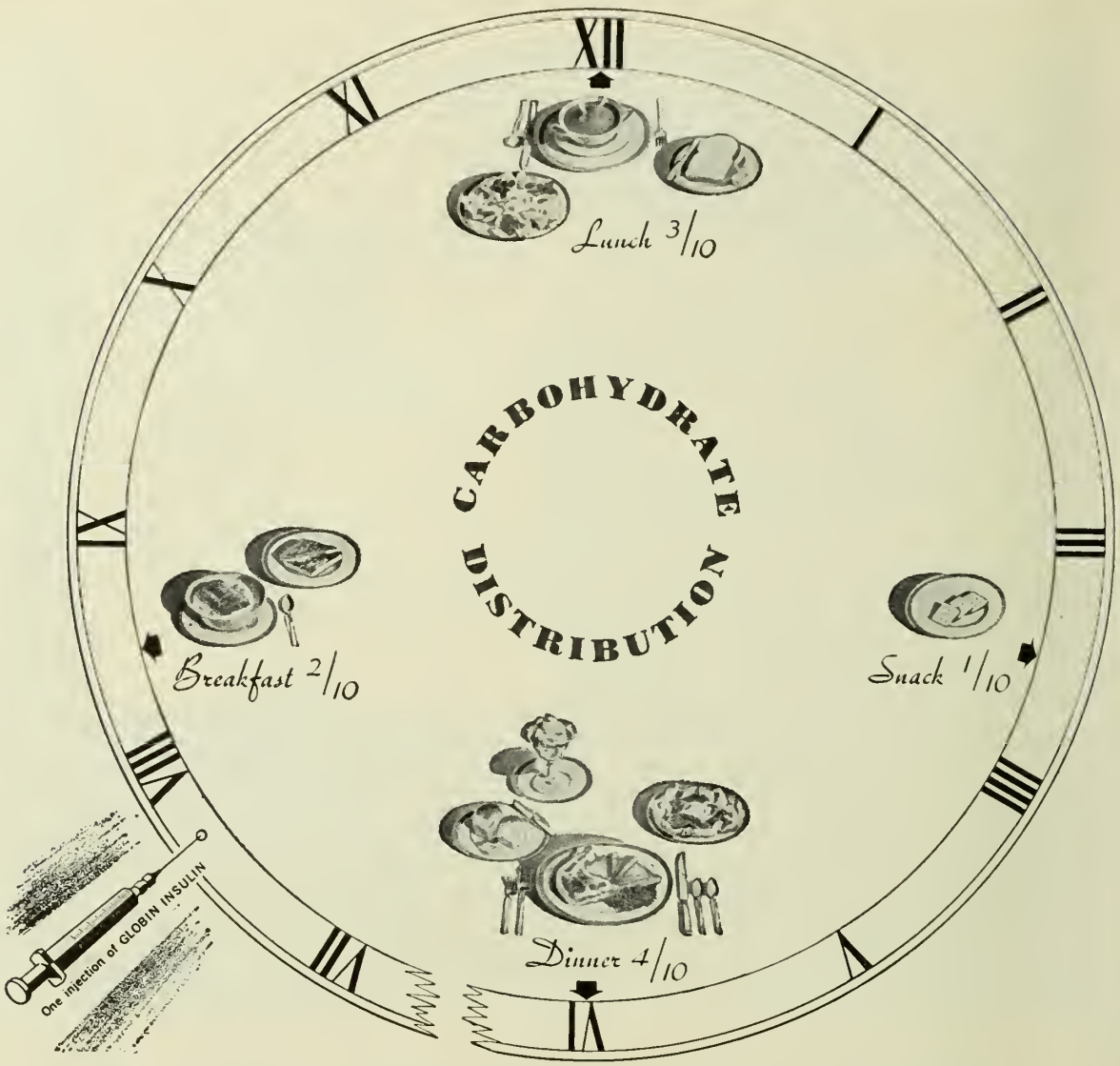
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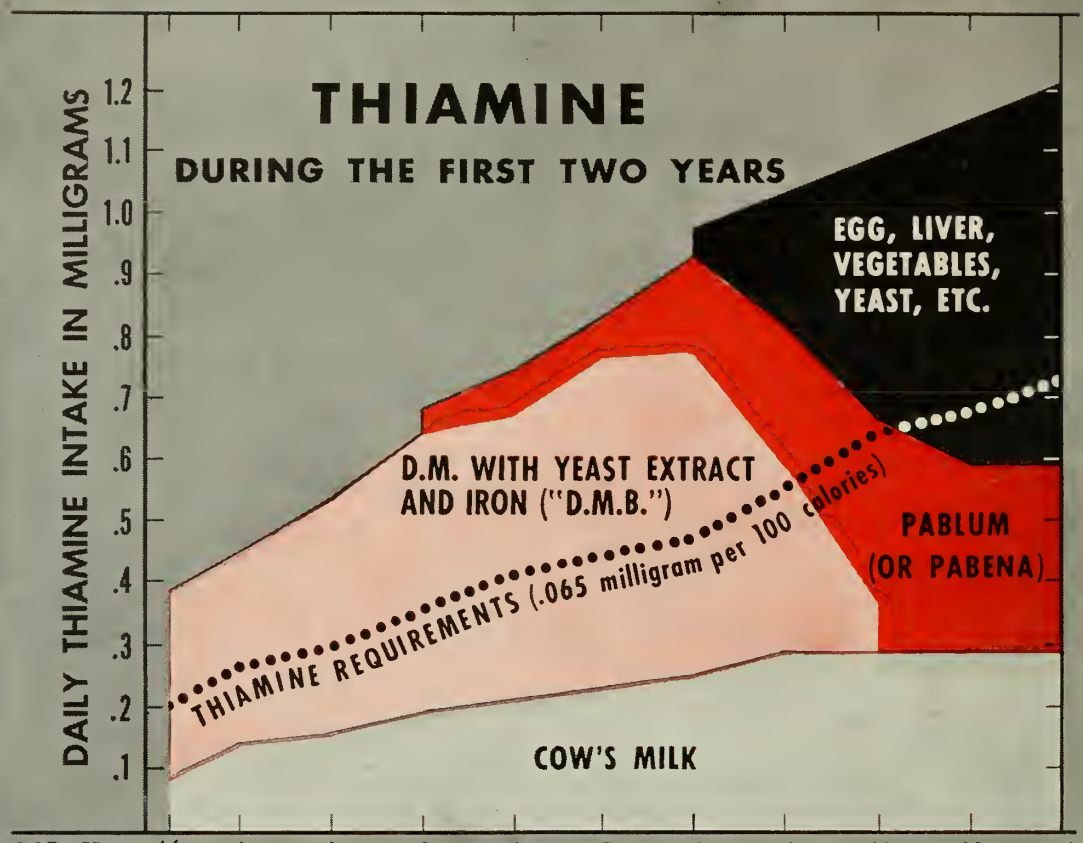
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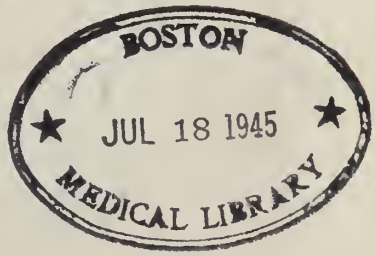
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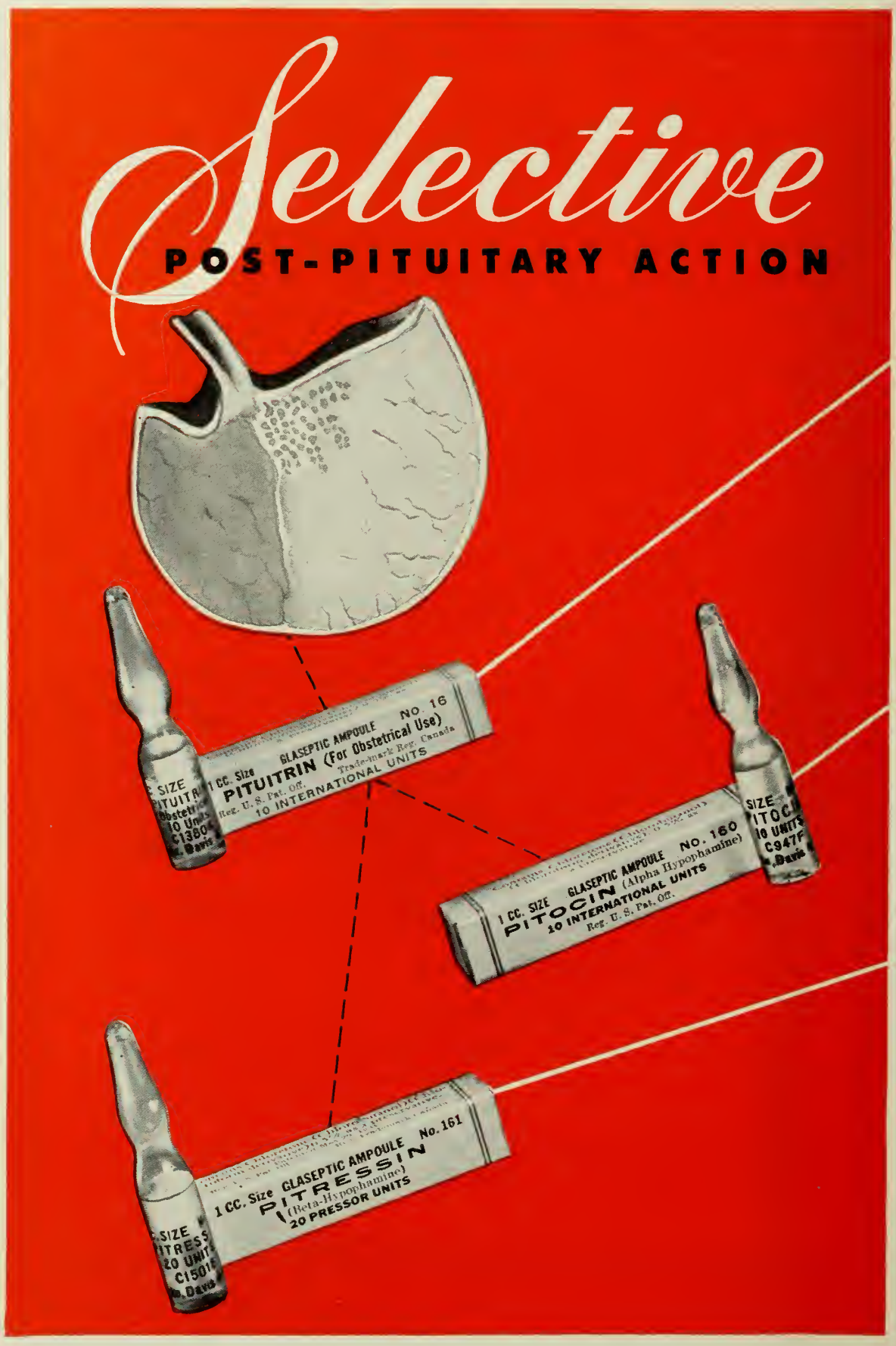




EDITORIAL

The Wagner-Murray-Dingell Bill
(S. 1050 of 1945)

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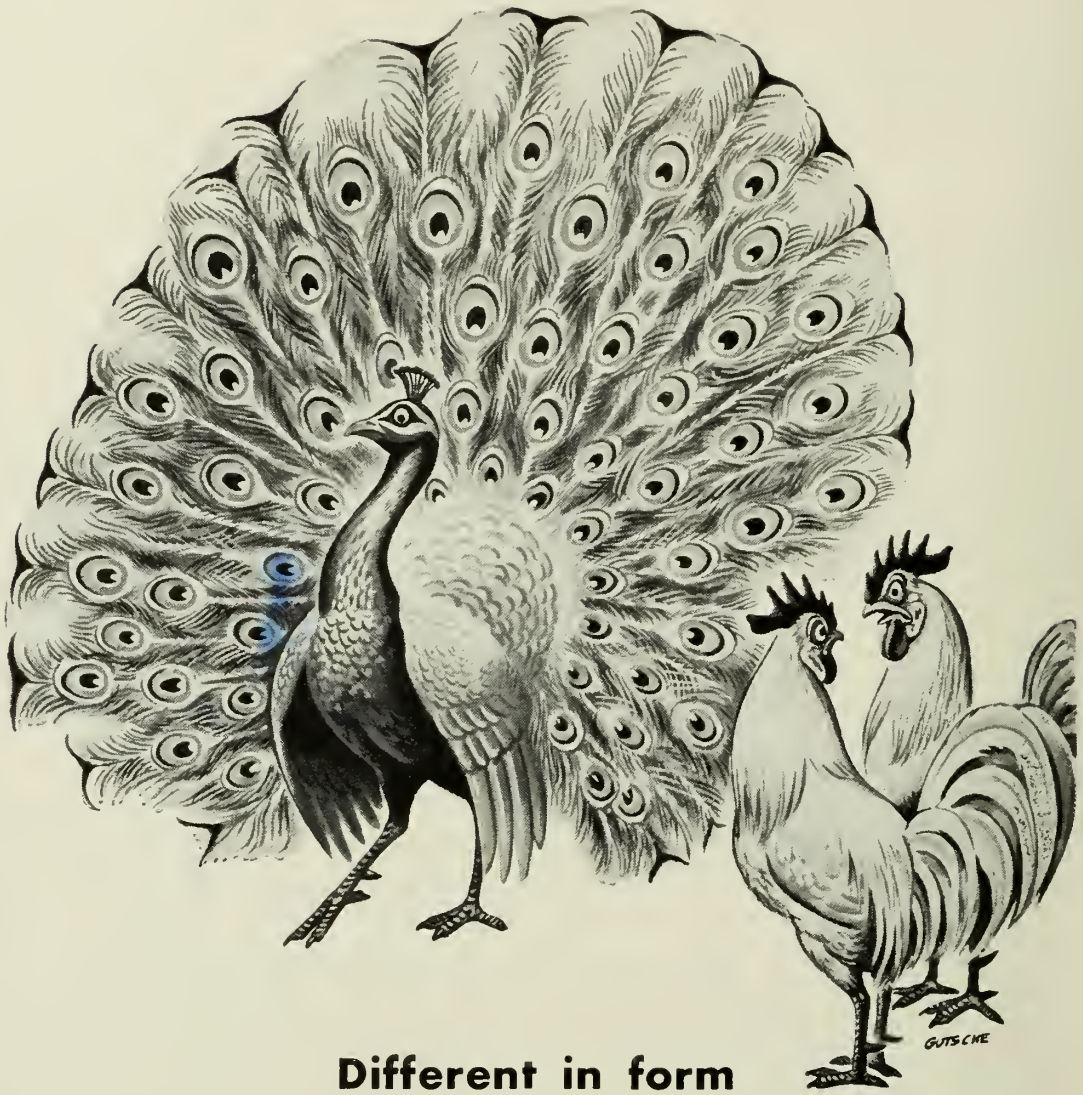
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Penicillin DOSAGE TABLE*

INDICATIONS	INITIAL DOSE (UNITS)	CONTINUING DOSAGE (UNITS)	UNITS IN 24 HR.	REMARKS
Serious Infections (staphylococcus, clostridium, hemolytic streptococcus, anaerobic streptococcus, pneumococcus, gonococcus, anthrax, meningococcus) Adults and children	15,000 to 20,000	(a) Intravenous drip: 2000 to 5000 every hr.	40,000 to 120,000 or more	(a) Dissolve ½ of 24 hr. dose in 1 liter (1000 cc.) normal saline; let drip at 30 to 40 drops per minute.
		or (b) Intramuscularly: 10,000 to 20,000 every 3 or 4 hr.	40,000 to 120,000 or more	(b) Concentration: 5000 U. per cc. normal saline.
		or (c) Intramuscular drip	40,000 to 120,000 or more	(c) Total daily dose in 250 cc. normal saline.
Infants	5000 to 10,000	3000 to 10,000 intramuscularly every 3 hr.	20,000 to 40,000 or more	Each dose in 1 or 2 cc. of normal saline.
Chronically infected compound injuries, osteomyelitis, etc. Adults and children	5000 to 10,000	10,000 every 2 hr. or 20,000 every 4 hr. intramuscularly or intravenously. Larger doses may be necessary at times.	40,000 to 120,000 or more	Concentration for intramuscular inj.: 5000 U. per cc. normal saline. For intravenous inj.: 1000 to 5000 U. per cc. Supplement with local treatment.
Gonorrhea	20,000 every 3 hr. intramuscularly for 5 doses		100,000	Results of treatment should be controlled by culture of exudate.
Empyema Adults and children	30,000 to 40,000 once or twice daily into empyema cavity		30,000 to 80,000	Dissolve in 20 to 40 cc. normal saline and inject into empyema cavity after aspiration of pus.
Meningitis Adults and children	10,000 once or twice daily into subarachnoid space or intracisternally		10,000 to 20,000	Concentration: 1000 U. per cc. normal saline.
Bacterial Endocarditis Adults and children	25,000 to 40,000	25,000 to 40,000 every 3 hr. intramuscularly	200,000 to 300,000	Continuous treatment for 3 weeks or longer. In a few cases the intravenous drip is more advantageous.

*Based upon recommendations by Chester S. Keefer, War *Production Board Penicillin Leaflet*, Apr. 1, 1945; and by Wallace E. Herrell and Roger L. J. Kennedy, *Journal of Pediatrics*, 25:505, Dec., 1944.

● *Write for pocket size copies of this Dosage Table*

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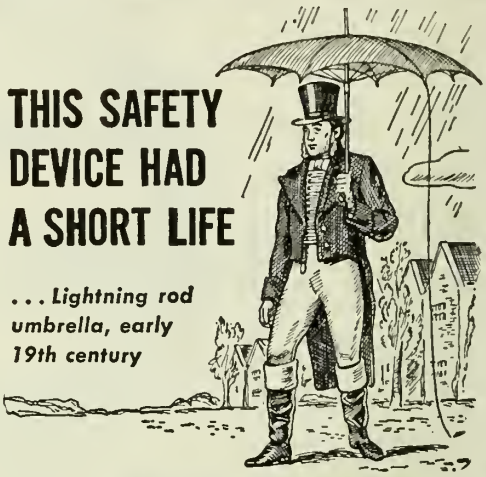
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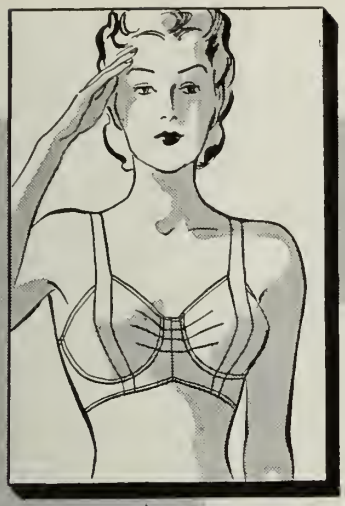
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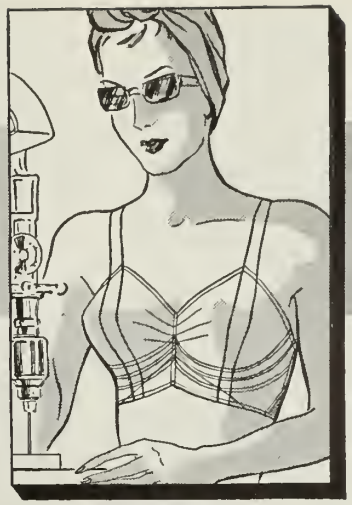
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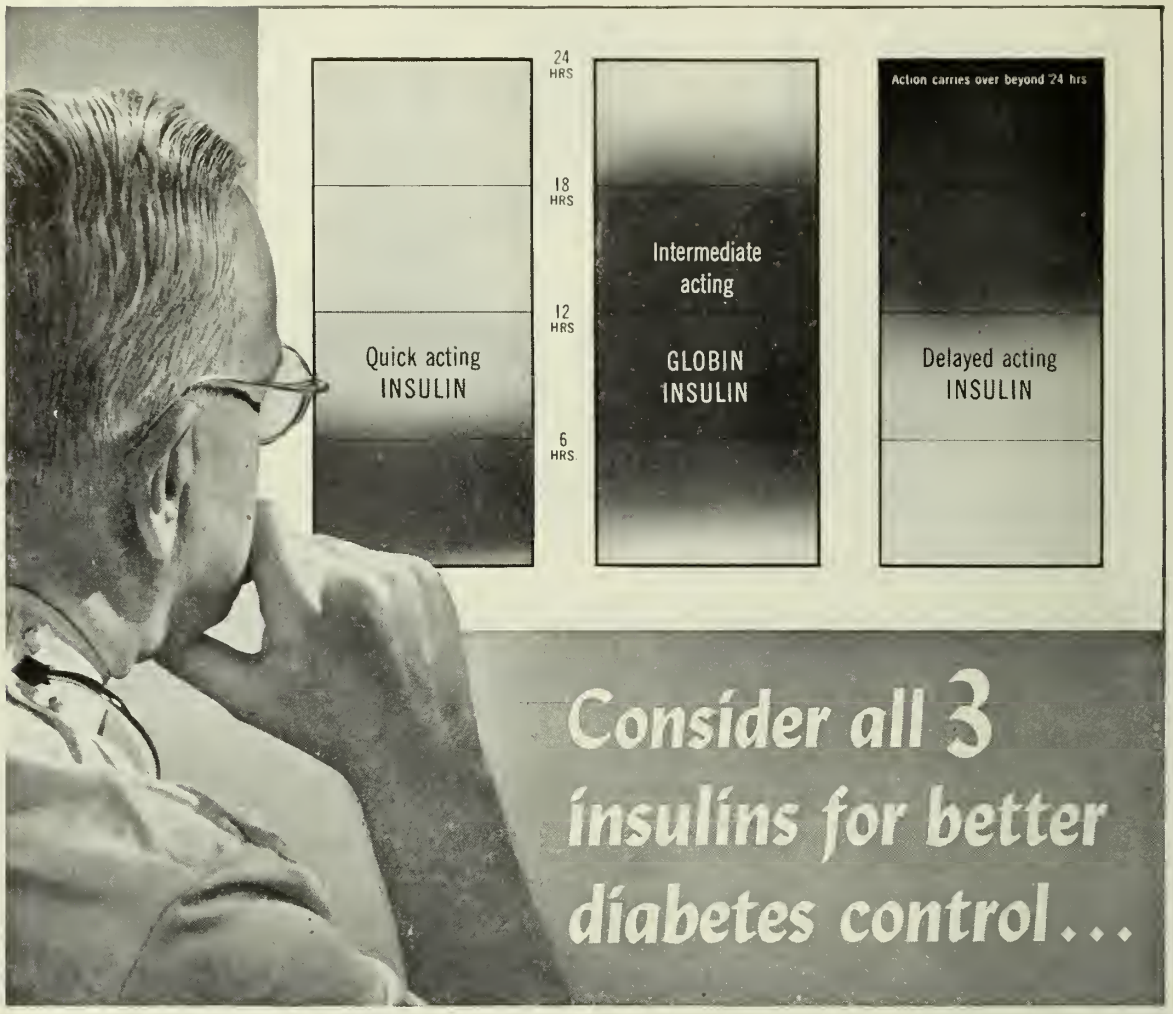
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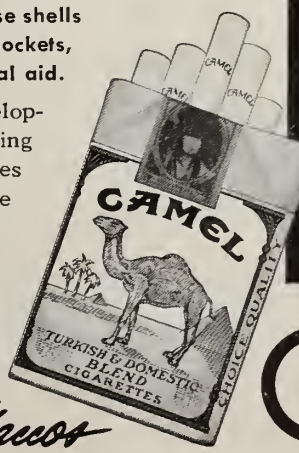


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CLINICAL EXPERIENCES WITH THIOURACIL

R. O. MUETHER, M.D.
WM. C. MACDONALD, M.D.
LT. L. GOLDBERG, M.C., A.U.S.
AND
J. T. VAN BRUGGEN, PHD.
ST. LOUIS

The use of thiouracil in the treatment of hyperthyroidism has become fairly well established through experiments on humans and there is no doubt as to its efficacy.

The use of thiouracil in the treatment of hyperthyroidism begins with observations by Kennedy[1] which showed that rabbits developed goiter when fed rape seed. Kennedy also fed thiourea since the active principle of rape seed was apparently a derivative of urea. He found that the thyroid glands in animals fed thiourea enlarged to four times their normal size during an eight week period. At approximately the same time, MacKenzie, MacKenzie and McCollum[2] found that sulfaguanidine and other sulfanilamides were goitrogenic for rats. Investigations of sulfanilamide compounds and thiourea showed that thiourea was approximately eight times as effective as the sulfa drugs. It was noticed that simultaneous with the enlargement of the thyroid gland there was a marked fall in the basal metabolic rate. This fall was not prevented by the administration of iodine but could be eliminated by feeding thyroxin in small doses daily. It also was found on examination of the anterior lobe of the pituitary that the histologic picture resembled that seen in the thyroidectomized animal, and that the removal of the pituitary prevented the development of goiter in such animals when thiourea was fed. If thyroxin is fed simultaneously with sulfa compounds or thiourea, both the pituitary and the thyroid retain their normal structures.

From the Department of Internal Medicine, St. Louis University School of Medicine, St. Louis.

Astwood[3] reported on a study of the relative effectiveness of the 106 chemical compounds which are known to inhibit the thyroid and became convinced that in the entire group two classes of compounds were most effective; thiourea derivatives and certain derivatives of anilin. In the first group, thiouracil and, second, thiobarbituric acid were more effective than thiourea.

The action of thiouracil and thiourea upon the thyroid gland has been well demonstrated by the work of Franklin, Chaikoff and Lerner, who showed that surviving thyroid slices were able to take up radioactive iodine but were unable to utilize it in the production of thyroxin in the presence of thiouracil. They later showed that the intact thyroid of the rat under the influence of thiouracil had a limited ability to take up radioactive iodine and an even more limited ability to synthesize thyroxin and diiodotyrosine.

With this background, it was decided that the sequence of events was something of this nature: thiourea or thiouracil (which is the more effective) prevents the synthesis of thyroxin even though iodine is present. As a result of the failure of thyroxin synthesis the pituitary is stimulated to form larger amounts of the thyroid-stimulating hormone and thus produces the characteristic hyperplasia so notable in animals and humans treated with thioracil. Thiocyanate is also goitrogenic but is ineffective in the presence of excess iodine.

For the last two years we have attempted to study the effects of thiouracil on hyperthyroidism and to evaluate the drug in certain types of psychoneurosis and cardiac failure in which it seemed that lowering of the basal metabolic rate might be helpful. In all, more than thirty-eight cases were studied.

PROCEDURE

Each patient in the study had a careful history and physical examination; a complete laboratory study including hematology, blood chemistry and urine analysis; roentgenograms of the chest were

done and of the gastrointestinal tract when indicated. Most cases had electrocardiograms as indicated; basal metabolism was determined at frequent intervals, usually every two weeks. Most of the cases had rather complete tests of liver function, including glucose tolerance (Exton and Rose), total protein, albumin globulin ratio, hippuric acid synthesis, bromsulfalein, cephalin flocculation test, cholesterol, and prothrombin-time.

When thiouracil was started, hematologic and urine studies were repeated every three days for two weeks and then every two weeks. Laboratory tests will be referred to when pertinent. The results of liver function tests will be presented in another communication. In the earlier parts of the study, the dose was usually 0.8 gms. but it was soon found that this dose was excessive and, in later cases, the initial dose was from 0.4 to 0.6 gms. per day.

REPORT OF CASES

Case 1. Exophthalmic Goiter: A girl, 14 years of age, entered the hospital September 22, 1943. Chief complaints were exophthalmus, dyspnea, extreme nervousness and loss of weight of about three months' duration.

Physical Examination.—The patient appeared unusually well nourished and well developed and appeared to be older than her given age. There was a definite exophthalmus and lid lag; thyroid was easily palpable, enlarged about three times its normal size and firm. There was a definite thrill and bruit. Pulse rate was 140 per minute and regular. Blood pressure was 140/80; no murmurs; lungs were clear; abdomen normal. On admission, the patient had a temperature of 99.8 F.

Laboratory Examination.—Laboratory findings were essentially normal. On September 23, 1943, the patient's basal metabolic rate was plus 44 per cent; thiouracil, 0.8 gm. daily in divided doses, was started and on October 2, 1943, the basal metabolic rate was plus 59 per cent. Thiouracil was continued and on October 13, 1943, the basal metabolic rate was plus 36 per cent and rapidly fell. The basal metabolic rate was repeated every two weeks. On November 10, 1943, it was plus 14 per cent and on December 2, 1943, minus 16 per cent. At that time the patient had gained weight and was entirely comfortable; blood pressure was 120/80. Thiouracil was discontinued and the patient was transferred to the surgical service for the thyroidectomy because the exophthalmus had not improved and seemed to be increased.

Unfortunately, ten days elapsed between the cessation of the drug and the operation. The operation was extremely bloody; the patient's pulse became very rapid and she returned to her room in thyroid crisis. Despite the administration of Lugol's solution, quinine and oxygen, the patient died four days after the operation. Pathologic study of the gland revealed the rather characteristic hyperplasia which is said to exist in these patients and there was marked fatty degeneration of the liver.

A number of patients who have had recurrences following surgery have responded well to thiouracil. In one case, the patient had been operated on three times, and each time there was a recurrence, but the patient responded readily to thiouracil.

Case 2. Toxic Adenoma, Postoperative Recurrence: A 27 year old female, married, was first seen on June 13, 1943, complaining of severe nervousness, exophthalmus and swelling of the neck. There were no serious past illnesses; tonsilectomy three years previously. Regional history revealed loss of weight, excessive sweating and palpitation for six months.

Physical Examination.—The patient was a well developed, well nourished, blonde woman with marked flushing of the skin. The pupils were dilated and eyes were stary with slight lid lag; thyroid gland was firm, smooth and easily palpable and about twice its normal size. The blood pressure was 180/100; pulse, 120 per minute; reflexes, hyperactive. The diagnosis of toxic adenoma of the thyroid gland was made and thyroidectomy was done three weeks later. On August 2, 1943, approximately two months after she was first seen, she returned. Her weight was 120 pounds, blood pressure 160/110, basal metabolic rate was minus 5 per cent. During the next four months the basal metabolic rate fell to minus 15 per cent and the patient was given 1 grain of thyroid extract daily; two weeks later the pulse was rapid but the blood pressure had fallen to 140/80 and the basal metabolic rate was minus 5 per cent. The thyroid extract was stopped. The patient returned four months later. She had been feeling well but noticed an increased nervousness. The basal metabolic rate was plus 27 per cent. Two weeks later the basal metabolic rate was plus 35 per cent. The patient, however, was less nervous. Thiouracil was started, 0.6 gm. daily in divided doses. Nervousness continued and her pulse rate was 120 per minute. The thiouracil was decreased to 0.4 gm. daily, and in the next month the basal metabolic rate fell to plus 3 per cent, and then to minus 3 per cent. Thiouracil was reduced to 0.2 gm. daily. After two months the basal metabolic rate was minus 7 per cent. The patient then discontinued thiouracil and six weeks later the basal metabolic rate was minus 13 per cent and four weeks later, plus 9 per cent, and four weeks later, minus 8 per cent. The patient continued to be symptomatically well with a blood pressure of 140/80 and a pulse that fluctuated between 78 and 85.

There are certain patients who always arouse considerable speculation. They are individuals who have the symptoms and often the physical signs of hyperthyroidism but who do not respond well to ordinary treatment and are generally classified as psychoneurotic. Several such cases have been noted.

Case 3. Asymptomatic Hyperthyroidism: M. G., aged 25, female, single, entered complaining of depigmentation of the eyelash and a small area of depigmentation on the forehead about the size of a quarter. She was slightly nervous and a little irritable. She had never been able to gain weight. Her past history was irrelevant.

Physical Examination.—The patient was essentially normal; blood pressure was 140/80; pulse ranged from 85 to 95, the basal metabolic rate was plus 35 per cent; one month later the basal metabolic rate was plus 45 per cent. The patient was started on thiouracil, 0.6 gm. daily. The basal metabolic rate slowly fell so that after six weeks it reached minus 5 per cent; thiouracil was reduced to 0.2 gm. daily and three weeks later the basal metabolic rate was plus 8 per cent. The drug was continued and the basal metabolic rate gradually fell to minus 12 per cent and remained there for two months. The patient improved symptomatically but did not gain weight. The thyroid gland had never been palpable and there was no change in this organ despite the use of thiouracil. The patient made a good response to thiouracil but there is a question, certainly, whether this case represents a mild hyperthyroidism or not.

Case 4. Psychoneurosis Simulating Hyperthyroidism: A man, aged 44 years, was first seen June 20, 1944,

complaining of nervousness, irritability, apprehension, indigestion, cough, fullness in the chest and inability to concentrate. Examination revealed a well developed, well nourished male. Pulse was regular and rapid, 130 per minute. Heart and lungs were clear; abdomen, normal; reflexes were hyperactive; electrocardiogram was normal; roentgenograms of the gastrointestinal tract and chest were normal.

Laboratory tests were normal; the basal metabolic rate was plus 25 per cent; thiouracil, 0.6 gm. daily, was given. Three weeks later the basal metabolic rate was plus 4 per cent. In one month the basal metabolic rate was plus 22 per cent and the patient had had no medication for two weeks prior to this examination. He was given 0.4 gm. of thiouracil daily and one month later his basal metabolic rate dropped to minus 1 per cent; two months later it was minus 19 per cent and thiouracil was stopped. Six weeks after discontinuing the drug the basal metabolic rate was still minus 18 per cent. The patient had not improved. He continued to complain of nervousness and anorexia at times; he was extremely apprehensive and had a sense of unreality. This was particularly serious because of the nature of his work and he was extremely distraught. He did, however, gain eight pounds in weight. The patient eventually was diagnosed a psychoneurotic and referred to a psychiatrist.

Case 5. Anxiety Neurosis Simulating Hyperthyroidism: A young female, 25 years of age, married, entered complaining of nervousness, inability to sleep, being easily upset, crying at times, having hot flushes and relatively poor appetite. Her sister had recently had a toxic goiter removed and the patient felt that she had essentially the same condition. Her regional history was unimportant.

Physical Examination.—Findings were normal. She was well developed, well nourished; did not have a palpable gland; there were no eye signs; heart and lungs were clear; pulse was 85; blood pressure was 120/80; basal metabolic rate was plus 30 per cent. A second basal taken one month later was plus 35 per cent. Thiouracil was started as a therapeutic trial. The drug was continued until the basal metabolic rate fell to minus 11 per cent and was continued for one month thereafter. During this time the patient had no appreciable improvement of her symptoms. The blood pressure continued 120/60; her pulse varied from 78 to 86. Thiouracil was discontinued and frequent feedings of carbohydrate was advised along with sedation and atropine. The patient eventually improved. Final diagnosis was anxiety neurosis.

Case 6. Hypogonadism Simulating Hyperthyroidism: The patient, R. M., was first seen on May 15, 1944. She complained of fullness of the neck and flushing of several years duration; weak spells which were worse before menses. Her regional history was essentially negative. Examination revealed a well developed, well nourished female. Blood pressure was 140/100. There was a fine tremor of the hand and her thyroid gland was palpated with difficulty. The skin was moist and the basal metabolic rate was plus 8 per cent. One month later the basal metabolic rate was plus 14 per cent; blood pressure was 140/100; pulse was 110. Thiouracil, 0.6 gm. daily, was administered along with sedation. Thiouracil was taken irregularly by the patient and although the period of observation extended over four months the basal metabolic rate never fell below plus 14 per cent and when last seen, the patient's pulse was still 112 and blood pressure was 120/70.

The patient was uncooperative and it was difficult to evaluate the results. It would seem that if this was a case of hyperthyroidism, thiouracil apparently was a failure, even though the drug was taken irregularly. Clinically, the patient was symptomatically improved on estrogens and sedatives although the basal metabolic rate remained elevated.

There are also certain cases which should at least theoretically be benefited by a low basal rate. The next two cases are patients with cardiac decompensation who were given thiouracil with the view of reducing the basal metabolic rate in the hope that this might aid in restoring compensation.

Case 7. Cardiac Decompensation; Coronary Disease; Arteriosclerosis: The patient, A. B., entered the hospital on May 10, 1944, and was discharged on July 18, 1944. On admission, she had dyspnea and choking, weakness, nervousness, nausea and vomiting, pitting edema of the ankles, and extremely rapid pulse. The electrocardiogram showed co-occlusion of the anterior coronary; blood pressure ranged from 256/120 to 205/110; basal metabolic rate was plus 37 per cent. Thiouracil was started, 0.6 gm. being given three times a day and the basal metabolic rate began to fall and in two months was plus 5 per cent. The patient was readmitted September 6, 1944, with a marked cardiac decompensation. Edema was marked and there was ascites; dyspnea was severe and oxygen therapy was necessary. The patient was given digitalis and sedation for two weeks, but compensation could not be restored. Thiouracil was again started; the basal metabolic rate was found to be plus 63 per cent. Thiouracil was continued for approximately a month, at which time the basal metabolic rate apparently had fallen considerably although a satisfactory test could not be made because of a severe persistent dyspnea and edema. No thiouracil was given during the last two months of her life because it was thought some of her mental confusion might be due to the drug. She died November 22, 1944. Her first response to thiouracil was very satisfactory; the second trial was unsatisfactory. Autopsy findings showed marked arteriosclerosis, coronary disease and aortic valvular disease.

Case 8. Cardiac Decompensation; Hypertension: O. G., aged 46, female, married, entered the hospital complaining of loss of weight, tiredness, dyspnea, headache and extreme nervousness.

Examination revealed a thin, excitable female with a blood pressure of 190/100. The heart was clear; no murmur; pulse, 130 per minute. The lungs were clear and the abdomen was normal; the basal metabolic rate was plus 45 per cent. Thiouracil, 0.6 gm., was administered daily and the basal metabolic rate fell to plus 25 per cent in three weeks; blood pressure was 160/100. The patient was improved symptomatically and she was continued on thiouracil, 0.2 gm. daily, for one month, at which time her basal metabolic rate was plus 5 per cent. The patient was much better and has been continued for three months on 0.2 gm. of thiouracil daily. She has gained 10 pounds in weight and her pulse rate ranges from 85 to 100; blood pressure has remained at 160/100.

It was felt that this patient probably has an essential hypertension superimposed, perhaps, on a mild hyperthyroidism. It is interesting in this case to note that the patient obtained a great deal of symptomatic relief from the lowered basal metabolic rate although her physical findings remain unchanged.

The last patient to be discussed had nephritis with hypertension with some physical findings suggesting hyperthyroidism.

Case 9. Glomerulo-nephritis with Hypertension: Female, aged 25, single, entered the hospital complaining of joint pains, backache, nervousness and a history of rheumatic fever.

Physical Examination.—The patient was a well developed, well nourished individual with prominent eyes but with no lidlag. The thyroid was not palpable, blood pressure was 150/100; pulse rate was 98; heart and lungs were clear. There was tenderness over the

kidneys on both sides. Urinanalysis revealed a trace of albumin and the patient had a moderate anemia, (hemoglobin 13.3 gms. per 100 cc.) basal metabolic rate was plus 11 per cent. Despite the normal basal metabolic rate she was given thiouracil, 0.6 gm. daily, and continued on it for a period of two months. Her electrocardiogram was normal; repeated laboratory tests revealed no change, urine continued to show from a trace to 1 plus albumen and there were always a few red blood cells and casts. The basal metabolic rate fell to minus 19 per cent but the patient was not improved. Her blood pressure continued to fluctuate between 140/100 and 160/120. The patient was removed from thiouracil and small doses of thyroid extract substituted. On this treatment the blood pressure fell to 140/90 and the pulse rate was reduced to 74 per minute.

Final diagnosis was glomerulonephritis with hypertension.

SIDE-EFFECTS OF THIOURACIL

The literature contains several reports regarding the toxicity of thiouracil.[4,5,6,7] In the main, the results follow closely the untoward effects found with sulfa therapy. Nausea and vomiting are said to be fairly common, skin rashes and drug fever have been recorded. The fever is said to occur after the patient has been on the drug for some time and indeed some investigators state that the untoward reactions may occur at any time. Marked leukopenia and even agranulocytosis have been described; a few cases of jaundice have been reported. Lymphodenopathy also is said to occur.

The thyroid gland may increase in size as a result of thiouracil therapy due to the stimulation by the pituitary. This is not a complication but has caused some authors to sound alarms of possible malignant changes. Usually the increase in size is only temporary as the pituitary apparently becomes fatigued and discontinues the elaboration of thyroid stimulating hormone. It is much too early to decide this question but some patients have been removed from thiouracil for from eight to ten months and have remained in remissions so that it is possible that therapy need not be continuous.

Psychic disturbances and even convulsions have been reported by some authors. The explanation for this is not clear.

In our own experiences, no serious untoward effects were noted in any of the cases reported in the entire series; leukopenia occurred three times but did not necessitate discontinuing therapy. Reduction in the amount administered was sufficient to allow the leukocyte count to return to normal. In one case, a mild jaundice developed but the etiology was not definite. Therapy was discontinued and resumed when the hepatitis improved. There was no subsequent jaundice. These represent the only reactions encountered except for a mild skin rash which cleared when dosage of thiouracil was reduced.

It is extremely difficult to explain the diversity of findings by various investigators concerning complications with this drug; many men have found, as we have, that the drug is relatively non-toxic while others, with similar groups both as to number and disease, have found large numbers of untoward effects. There is little doubt in our mind that the dose in the past has been needlessly large. From 0.4 to 0.2 gm. per day is probably adequate for control. Also, there probably has been carelessness in administration but, taking these things into consideration, the discrepancies can hardly be explained.

Many reports point to the increased vascularity of the gland following thiouracil therapy and it is felt that a word should be said about this. The hyperplasia of the gland does increase vascularity and bleeding at operation. This perhaps can be reduced by stopping thiouracil and administering iodine for a week or ten days before surgical procedure. This is believed to be unsatisfactory, however, and it would seem more rational to give thyroid extract to reduce the pituitary stimulation after the basal rate has begun to fall and thus decrease, if possible, the hyperplasia. It is important to note that the size of the gland as judged by palpation may often decrease during thiouracil therapy.

As to the advisability of surgery in these cases, it is felt that surgery will always be used for cosmetic effect or because of increasing exophthalmus, although surgery will not necessarily correct the condition in patients with hyperthyroidism who cannot be kept under observation and in those cases in which the gland is causing mechanical obstruction.

There are some investigators who express a fear that malignant changes may occur as a result of the marked hyperplasia. No information is available to substantiate or refute this. Certainly, it would seem reasonable to believe that the drug occasionally may be administered to cases with early malignancy and that such cases may be accelerated. As a rule, however, the stimulation of the gland by the pituitary will disappear gradually and the hyperplasia probably will subside. On the other hand, the drug need not be given forever to many cases. It would seem, then, that one is justified in using the drug clinically so long as the patients can be kept under fairly close observation.

CONCLUSION

1. Thiouracil is a drug capable of producing complete physiologic remissions in hyperthyroidism.

2. It is extremely useful in the diagnosis and differentiation of true hyperthyroidism from anxiety neurosis, psychoneurosis and similar conditions.

3. It may play a significant role in the treatment of certain types of hypertension and cardiac decompensation.

4. Thiouracil, when carefully controlled, has not produced alarming side-effects in our experience.

5. It is too soon to determine what effect thiouracil will have on the production of malignancy in the thyroid gland.

634 N. Grand Blvd.

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RELAPSING FEBRILE NODULAR NONSUPPURATIVE PANNICULITIS

WITH REPORT OF A CASE

GEORGE IVES, M.D.

ST. LOUIS

This report was prepared for presentation to the St. Louis Surgical Society. It should, therefore, bear some relationship to surgery. However, I fear the relationship may not be sufficiently close to make the report of profound interest to most surgeons.

Surgeons have played a minor role in the history of this disease. So far as I know, the reports have been made by internists, dermatologists, pediatricians and pathologists. Although there may be opinions to the contrary, it appears that surgeons should be acquainted with the disease.

This condition is characterized by the presence of one or more subcutaneous nodules. Are these surgical lesions? Should they be excised with the expectation of cure, or with the hope that the pathologist will make the diagnosis? Possibly answers to these questions will be found in this paper.

In 1891 Pfeifer[1] in Germany made the first report of a case of this disease. The second case was reported in 1916 from Baltimore by Gilchrist and Ketron.[2] In 1925 Weber[3] in England reported the third case. Weber was the first to give the condition a name. He called it relapsing nonsuppurative nodular panniculitis. In 1928 Christian[4] in Boston reported the fourth case. He suggested that the word febrile be added to the name proposed by Weber. Hence, the name which now has been accepted generally is relapsing febrile nodular nonsuppurative panniculitis. The disease is also known as the Weber-Christian disease.

I know of no disease which is so well described in its name as this one is described. It seems possible that one knowing only the name might be capable of a correct diagnosis. Although it may be said that little is known of the disease, it is equally true that there is important information regarding it, which is not suggested by its most descriptive name.

The following quotation is an excellent, although incomplete, description of the disease:[5] "Relapsing febrile nodular nonsuppurative panniculitis (Weber-Christian disease) is characterized by recurring bouts of fever, associated with the appearance of crops of nodules, varying from the size of a pea to several centimeters in diameter, usually on the thighs and arms, frequently on the abdomen and back and occasionally on the lower part of the legs. The nodules, which may be either painless or somewhat tender to touch, are erythematous and raised above the surface of the normal skin. Over a period of a few months they slowly regress, leaving shallow or deep pitted areas covered by normal skin."

A small number of the reported cases have shown splenomegaly and leukopenia. The presence of either splenomegaly or leukopenia would add support to a diagnosis of Weber-Christian disease.

Apparently I am speaking of a rare disease. I have found reports of twenty-nine cases. Twenty-seven of these have been reported since 1925. Since Bailey[6] reported five cases, one might properly suspect that the condition is frequently unrecognized and that we have no reliable knowledge of its incidence.

CASE REPORT

Mr. C. B., aged 53 years, a teacher and a resident of Webster Groves, Missouri, entered the Missouri Baptist Hospital for diagnosis on January 13, 1945.

On January 1, 1945, he noticed a sore hangnail on a finger of the left hand, and on the fourth right digit there was an inflamed ulcer due to a cigarette burn. On January 5 he had fever and felt ill. At that time he consulted his physician, Dr. F. P. Gaunt, who advised him to go to bed and apply poultices to the ulcer. The ulcer healed promptly. About two days after the patient went to bed a lesion appeared on the right forearm. It was about 2 inches long but it had no definite border. It was red, firm and somewhat tender. Possibly a day following the appearance of the arm lesion, single lesions appeared on each thigh. One was on the anterior aspect of the left thigh and the other was on the posterior surface of the right thigh. The thigh lesions were at first areas of tenderness without induration.

Dr. Gaunt prescribed sulfathiazole, 7.5 grains every four hours. This medication was discontinued after three days when the presence of leukopenia was discovered.

The patient entered the hospital about ten days after the onset of his illness. I shall record an observation regarding the patient, which does not appear on the hospital record. The patient was a thin man and his weight was 140 pounds. It was found that his spleen was enlarged, extending to the umbilicus. The tender areas on the thighs were rather firm subcutaneous nodules at the time he entered the hospital. Each was raised above the normal level of the skin. The skin over the nodule on the right thigh was reddish and that over the nodule on the left thigh showed no discoloration. The right nodule was more tender than the left. Both nodules were about 3 inches long.

The patient was in the hospital twenty-six days. The temperature during that time fluctuated very irregularly between normal and 101 F. The red cells, hemoglobin, and platelets were normal.

The leukocytes gave valuable information. The total count upon admission to the hospital was 1,000. The count at time of discharge was 2,300. The highest

From the Missouri Baptist Hospital Laboratory, St. Louis.
Read before the St. Louis Surgical Society, April 18, 1945.

count was 4,600. Most of the counts, which were made frequently, were less than 3,000. A typical differential count made the day before discharge was as follows: eosinophils 2 per cent; stabs 20 per cent; segmented neutrophils 19 per cent; lymphocytes 59 per cent.

Upon admission, toxic granules of the leukocytes were extremely numerous. They were present upon discharge but their number was decreased markedly.

During his time in the hospital, the patient received much medication. Possibly for the purposes of this report it will be sufficient to mention that he received two blood transfusions and two courses of intramuscular penicillin injections. Each course of penicillin included 100,000 units.

The patient went home by ambulance. His spleen was still enlarged. He had the abnormal blood picture mentioned previously. The lesion of the right forearm and that of the left thigh had healed. The nodule on the right leg was still present and tender and the skin over it was erythematous.

After the patient went home the remaining nodule became somewhat soft and it ruptured spontaneously through the skin.

On April 12 the patient visited me. He appeared well but he said he had not gained his former strength and suffered from insomnia. The spleen apparently had not changed in size. The lesions of the right forearm and of left thigh left no scars or depressions. The lesion of the right thigh was now represented by a discolored, slightly depressed area at the site of the healed sinus.

The hemoglobin was 101 per cent and the leukocyte count was 3,600. The differential count was as follows: eosinophils 3 per cent; stabs 11 per cent, segmented neutrophils 11 per cent and lymphocytes 75 per cent. Toxic granules were still present in the granulocytes. The blood picture was interpreted to indicate that the disease was still active although the subcutaneous lesions had disappeared.

This disease is probably infectious. However, no etiologic agent has been found. In the case reported the blood culture was negative. Laboratory animals should have been inoculated but were not.

In most, if not in all, of the reported cases there has been no apparent portal of entrance of the etiologic organism. In this case there was good, although not conclusive, evidence that the organism entered the body through an ulcer on the hand.

No biopsy was performed in this case. The subcutaneous lesions are in the panniculus adiposus. There is simple inflammation in the fat and the microscopic picture is not pathognomonic. Histologic examinations of lesions have in the past been of value in this disease and they could be of value in any case if they are interpreted properly.

The pitted or depressed areas in the skin which occur following healing of the subcutaneous nodules have been a prominent feature in the descriptions of this disease. These areas represent areas of fat destruction in the panniculus adiposus. Presumably in a thick panniculus the depressions are likely to be deep and when the panniculus is thin the depressions will be shallow or not noticeable.

Since the distribution of this disease between the sexes, according to reported cases, is in the ratio of five females to one male, and since the panniculus is usually thicker in females than in males, it can be understood why pitting has been a common feature in the reported cases. Thus it is important to know that this patient was a thin man. One can understand why there was no pitted area at the site of the nodule which was present on the anterior left thigh, and why there was only slight pitting where the nodule was present on the posterior aspect of the right thigh.

From reading the literature on this subject I obtained the impression that panniculitis is the essential and important feature of this disease. On the other hand, it appears possible and probable that panniculitis is a feature of only some cases of this infection. It appears that some cases of apparent infection, which are now unexplainable, will in the future be found to be Weber-Christian disease. This theory, so far as I know, has not previously been expressed.

Evidence in this case seems to indicate that the disease is active after the healing of the nodules. It is my theory that this is an infectious disease, that panniculitis is a feature in some cases and that when panniculitis is not present the physician will be confronted with a diagnostic problem which he usually will not solve.

I confidently expect that at some future time a test will be devised by which Weber-Christian disease may be recognized reliably in the absence of panniculitis. When such a test is devised it will be possible to prove or disprove my theory that it is a disease with protean manifestations and that panniculitis is an inconstant manifestation.

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THE HIGH FREQUENCY CURRENTS IN SURGERY

CLEVELAND H. SHUTT, M.D.

ST. LOUIS

During the last decade, high frequency or radio frequency currents, comprising a small fraction of the entire radio wave band, have been adapted to develop irreplaceable technics in surgery, medicine and the industries.

These modalities or technics provide the high frequency or radio knife, the bipolar or coagulation needle, the unipolar, desiccation or drying needle and diathermy in various forms.

Diathermy is used in surgical and medical conditions; for producing sustained heat, deep in the

body tissues; and in industry for various heating and drying purposes.

Cutting, coagulation and desiccation technics are widely used in various surgical procedures. The high frequency or radio currents are developed by passing the ordinary alternating light current through special transformers. Their principle effect is to cause separation of tissues when the knife is used or coagulation and desiccation at the needle point. Cutting effects require the higher, bipolar frequencies, and lower frequencies are used for coagulation, desiccation and diathermy. Fifteen hundred or more degrees of heat can be produced, almost instantly, at the needle point.

Cutting is accomplished by using small, special composition metal, dull blades, either straight, curved or fashioned into loops. The blades remain comparatively cool when moved lightly and rapidly through body tissues. Slow movement and pressure allow instant development of much heat with consequent coagulation and desiccation. This effect will prevent healing by primary union regardless of any suture method employed. Where proper cutting technic is used the tissue edges are smooth, very slightly swollen and allow healing by primary union. I prefer nonabsorbent suture materials and usually do not remove the sutures for from eight to twelve days, depending upon the tension and the length of the wound. This is advisable because the surgeon seldom is able to make a long incision without slight coagulation occurring at some point, which requires additional time for healing. I have never failed to obtain primary union in any wound when that was intended and desired.

The electric knife current prevents capillary bleeding. Larger vessels are grasped with small nosed artery forceps. When cutting is finished, the current is reduced and bleeding points are coagulated by lifting each forcep in turn, clear of all other tissues, and contacting them with the knife blade. A slight crackling sound is heard and small coagulated areas result at the nose of the forceps. The forceps are released from vessel to vessel as the process is continued, and no further ligation is required. Any minor bleeding surface is touched with the knife point for a few moments. In breast resections an axillary drain is placed through a small stab wound and sutured to the skin. Any serum accumulations will thus be prevented. Very little pain is experienced after the operation, due to slight searing of the nerve endings. As a rule, the patient can be allowed out of bed within two or three days.

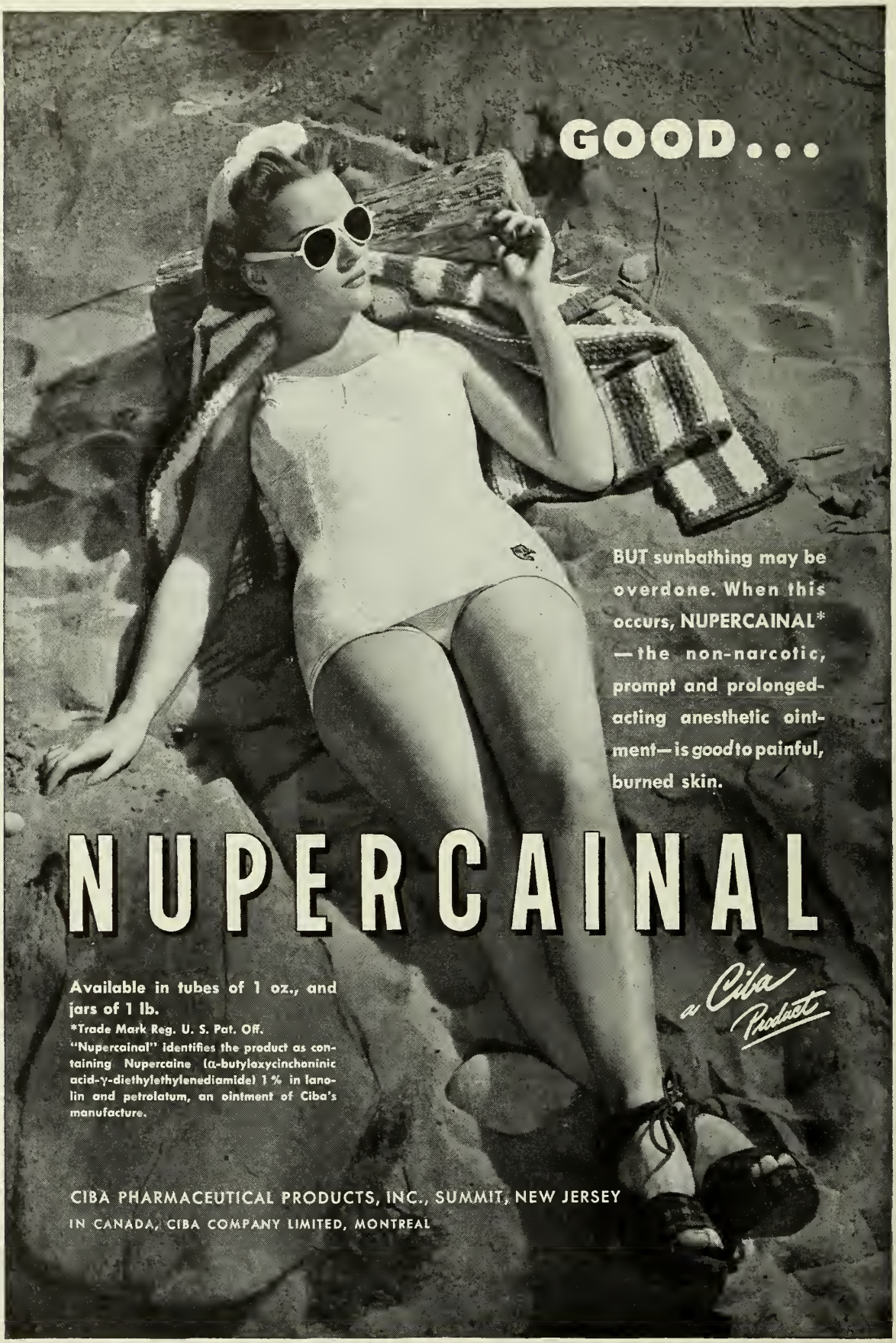
The electric knife is without a peer in breast, gastric and bowel resections, gastro-enterostomies and incising or excising large carbuncles. Hemorrhage is minimal.

The electric loop knife furnishes urologic surgeons with an irreplaceable instrument for excising or treating tumors of the bladder neck and walls. These tumors occur frequently and cause more or less severe hematuria. It was not possible to operate such conditions with reasonable success, using ordinary cutting methods, due to difficulties of hemorrhage control. Many deaths ensued due to hemorrhage, shock and infection. Many of the less serious cases are now treated in the office. There is little after pain and the mortality is very low. Recovery is rapid, disability and expense are minimal and truly miraculous effects are obtained.

The bipolar coagulation technic is invaluable in operations for hemorrhoids, fissures, fistulas and infected pockets. Nitrous oxide gas, intravenous sodium pentothal or low spinal anesthesia may be used. There is little or no hemorrhage, no introduction of infection, no sutures required and postoperative pain is minimal. Such operations require only from ten to fifteen minutes, and the resulting scars are smooth and thin. Large and small varices can be treated rapidly, allowing a thorough clean-up of all involved areas. There is some pain and discomfort with early eliminations after any type of rectal operation, but due to absence of sutures and ligatures causing nerve pressure, the pain is less than in any other type of rectal operation. Mineral oil laxatives and light laxative diets are used for the first few days and codeine with aspirin may be required following each bowel action, depending upon the severity of the condition. The rectum should be dilated, gently, with gloved finger about two times per week for the first two to four weeks. Since all high frequency effects are instantaneous, the beginner tends to overcoagulate or destroy more tissue than is necessary

Pruritis ani has long proved a most difficult and stubborn condition. I have developed a diathermy needle technic, over the last fifteen years, which has not failed to provide great relief or cure in all types of pruritis, either around the anus or involving other body surfaces. Multiple punctures through the skin about one fourth inch apart in circles beginning near the anus and extending well beyond the involved area are made rapidly. The circles are placed about one fourth inch apart and punctures made to overlap the first circle. Sterile vaseline or nupercaine ointment is applied. Relief is rapid and satisfactory, depending upon the severity and duration of the process. The aim is to destroy surface inervation. The multiple puncture technic is a decided improvement over the cutting methods so far recommended in the very severe cases.

The unipolar current causes desiccation or drying and is most useful in treating skin surface growths such as warts, moles and parasitic skin infections. The current allows perfect control by the operator, and the resulting scars are very satisfactory. Parasitic skin infections, especially the Taenia versicolor variety, are widely disseminated and occur on the skin of persons with the best of hygienic habits. Brownish, closely adherent crusts form which are frequently classed as moles.


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Patches occur over the head, neck and body. They grow slowly but become quite unsightly. Such patches can be eliminated rapidly by using local anesthesia and the desiccation needle. The crusts are desiccated and scraped off with a dull scalpel. Daily application of a saturated sodium hyposulphite solution is used for a week or more. There is no scarring. Senile keratoses may be removed by desiccation. Small to medium skin epitheliomas are easily treated, but the desiccation must be deep and thorough, extending well beyond the involved area. Healing is rapid, painless and the resulting scar is smooth.

Chronic infected and ulcerated conditions of the cervix uteri are successfully treated by coagulation and desiccation. Certain ulcerated or growth conditions of the nose, mouth and throat are ideal for surgical diathermy.

High frequency technics are learned easily by surgeons having some basic knowledge of electricity, some natural mechanical ability and an absence of undue fear of electricity. He must realize that tissue effects are immediate and thus avoid the early tendency to cause more tissue destruction than is necessary or advisable.

The various high frequency technics have proven irreplaceable in most every branch of surgery and medicine. The physician perhaps obtains his most valuable effects in early cases of pneumonia with pleuritic involvements by using deep diathermy. Many thousands of physicians in general surgery, medicine and the specialties make daily use of these technics with great benefit to their patients.

Every physician should have training in the use of the technics which are applicable to his problems.

220 N. Fourth Street.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 69

PRESENTATION OF CASE

R. G., a 59 year old timekeeper, entered Barnes Hospital on March 2 and died March 10, 1945. The patient was mentally obtunded and the history was obtained from his wife.

Chief Complaints.—Shortness of breath and swelling of the ankles.

Family History.—One sister had high blood pressure and obesity.

Past History.—The patient had always been essentially well and strong until the present illness. Several years ago he had had a skin cancer of the face which was destroyed by radium. Deafness in the left ear had been present for a long time. Ten years previous to admission the upper teeth were removed to relieve neuritis of the shoulder. For many years he drank a great deal of water and urinated frequently at night. He was a very moderate drinker of alcohol. For years he had been a contractor and builder but for the last year he had been a timekeeper.

Present Illness.—Two years previous to admission the patient had a brisk nasal hemorrhage which eventually was controlled by cautery. One year later he passed blood in the urine and was put to bed for ten days during which hematuria gradually disappeared. At that time he complained of extreme weakness and fatigue. His doctor told him that he had high blood pressure for which no medication was given. Since then he had been somewhat short of breath on exertion. This symptom had become much more pronounced during the last three months and gradually increased until he had to sleep in a sitting position. Four months previous to admission swelling of the feet was first noted. This gradually increased to involve the legs to the knees. During this period he complained occasionally of a short, sharp pain in the chest. He worked until three weeks before admission, then he rested for five days, and again returned to work until one week before entering the hospital. At that time he went home with a sore throat and cough and said that he was "about to collapse." He had received several hypodermic injections for shortness of breath and a tablet of morphine on the day of admission. There had been a weight loss of 40 pounds during the last three months, from 190 to 150, although the patient's intake of starchy foods had been restricted.

Physical Examination.—Temperature was 37.5 C., pulse 82, respiration 36, blood pressure 210/150. The patient, who was well nourished and developed, appeared acutely ill. He was somewhat mentally obtunded. Orthopnea was present and respirations were of the Cheyne-Stokes type. The skin of the face was diffusely red and presented many telangiectases. There was considerable prominence of the eyes, but orbital tension was not increased. The pupils were pin point. After mydriasis, the fundi showed the disks to be well defined, the arterioles narrow and the veins markedly nicked at the crossings. Small hemorrhages were seen but no exudate. The pharynx was diffusely red. The trachea was in the midline. The veins of the neck were distended moderately. There was dulness to percussion at the bases of both lungs, particularly on the right, where breath and voice sounds were distant. Above these areas moist rales were heard, particularly on the left side. The heart was enlarged both to the right and left. The point of maximum impulse was in the sixth interspace midway between the nipple and anterior axillary line. A diffuse precordial heave was present. The sounds were of poor quality. A gallop rhythm was present but no murmurs were heard. The liver was palpable five fingerbreadths below the right costal margin. The edge could not be felt definitely; the

surface was smooth. A fluid wave and shifting dulness were present. There was edema of the scrotum. The prostate was not enlarged; it was soft and boggy. Three plus edema was present over the ankles and legs. The tendon reflexes were hypoactive but equal. There were no pathologic toe signs.

Laboratory Findings.—Blood count: red cells 4,120,000, hemoglobin 13.5 gms., white cells 6,150, differential count: stab forms 6 per cent, segmented forms 70 per cent, lymphocytes 19 per cent, monocytes 5 per cent. Urinalysis: specific gravity 1.011, albumin 3 plus, sugar negative, microscopic negative. Stool examination showed guaiac faintly positive. Kahn reaction was negative. Blood chemistry: nonprotein nitrogen 20 mg. per cent, total proteins 6.4 gms. per cent, albumin 3.9, globulin 2.5. Circulation time (decholin) 30 seconds, venous pressure 208 mm. H_2O. Concentration diuresis test was 1010 to 1017. Phenolsulfonphthalein test was 7 per cent excretion in thirty minutes, 30 per cent in one hundred twenty minutes. Vital capacity was 770 cc. Roentgenogram of the chest showed the cardiac silhouette to be enlarged to the left. The aorta was long and tortuous. There was considerable fluid in the right pleural cavity and a small amount in the left. Electrocardiogram showed T waves isoelectric in lead I, diphasic in II, isoelectric in III, upright in IV. Interpretation was myocardial damage.

Course in Hospital.—During the first twenty-four hours the patient received 1 mg. of digoxin intravenously and 0.48 gms. of aminophyllin intramuscularly. Three hours later an irregular cardiac rhythm developed with a pulse deficit. The following morning an electrocardiogram revealed a supraventricular tachycardia. At that time the circulation time was 22 seconds and the venous pressure 160 mm. H_2O. The vital capacity had risen to 2,300 cc. Cheyne-Stokes respirations had disappeared. The patient was mentally alert and feeling much better. He could lie flat without much discomfort. The following morning (March 4) 0.5 gm. of digoxin was given intravenously and 1/100 gr. prostigmine subcutaneously. Cheyne-Stokes respirations had reappeared and the heart rhythm had not changed materially. That evening the pulse rate was 58 beats per minute and an irregular irregularity had reappeared. The patient complained of nausea. After the first two days in the hospital his temperature remained essentially normal. On March 5 the circulation time was 25 seconds, the venous pressure 92 mm. H_2O, the vital capacity 2,400 cc. He was given 0.5 mgs. of digoxin intravenously. On March 6 a loss of 14 pounds in weight was recorded. An electrocardiogram revealed auricular fibrillation, many ventricular premature contractions from several foci, and digitalis effect. Digoxin, 0.5 mg., by mouth daily was prescribed. On March 8 the patient was improved markedly, although the cardiac rhythm was still quite variable. It was slower but irregular. On March 10 at 5:45 p. m. the patient developed sudden severe substernal distress which he described as an intense pressure. He was writhing in pain and soaked with perspiration. The lips and nail beds were pink. The blood pressure was 160/98. Morphine, grains 1/6, was given with little effect and the dose was repeated together with papavarine 0.12 gm. intramuscularly. Shortly thereafter the patient went into shock. The blood pressure could not be obtained. Caffeine sodium benzoate, 0.5 gm., was given intravenously and positive pressure 0_2 was administered. Plasma transfusion was begun. He died within an hour after onset of pain in the chest.

CLINICAL DISCUSSION

Dr. Harry Alexander: It is apparent that this patient had vascular hypertension and cardiac failure. Dr. Smith, would you classify this hypertension as the essential or the secondary type of hypertension?

Dr. John Smith: I believe that it was primary essential hypertension.

Dr. Alexander: This patient's blood pressure was 230/150. Do you consider that unusually high for essential hypertension?

Dr. Smith: No, not in the presence of cardiac failure. It frequently happens that the blood pressure rises sharply in cardiac failure, sometimes to points that are unmeasurable. When the cardiac failure is relieved, the tension drops to more moderate levels.

Dr. Alexander: This patient had marked arteriosclerotic changes in the eyegrounds as well as hemorrhages. Is this indicative that the hypertension was of considerable severity or duration?

Dr. Smith: Persons with essential hypertension frequently develop arteriolar changes. This particular patient was 59 years of age and may have had the disease for many years. However, the heart was not greatly enlarged.

Dr. Alexander: Dr. Wood, do you think this patient had essential hypertension or that he had nephrosclerosis?

Dr. W. Barry Wood: Confusion often arises over the definition of essential hypertension, which is usually defined as hypertension beginning without any demonstrable renal disease. This patient may have originally had essential hypertension which later developed into nephrosclerosis.

Dr. Alexander: Did the hypertension secondarily affect the kidneys or did the arteriolar disease come first?

Dr. Wood: That question would have to be answered on the basis of the facts in the history, about which we do not have sufficient information.

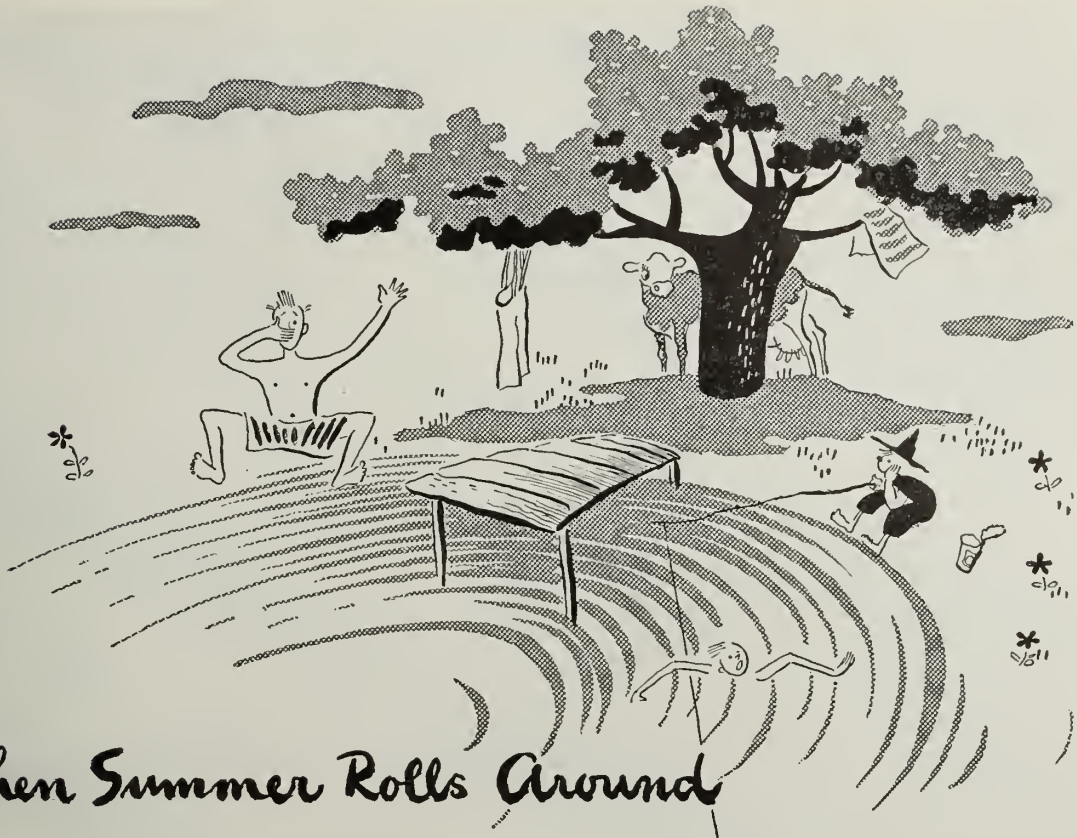
Dr. Alexander: What is your opinion on this point, Dr. Olmsted? How frequently does a diminution of renal function occur in essential hypertension?

Dr. Olmsted: The only factor against this being a terminal phase of essential hypertension is the normal nonprotein nitrogen.

Dr. Alexander: Dr. Massie, what is your impression in this case?

Dr. Edward Massie: I think this case is one of primary hypertension which is progressing in the direction of the malignant phase. I prefer the expression "primary hypertension" to "essential hypertension." If the hypertension is secondary to renal disease the blood pressure will not rise as high as in primary vascular disease which goes on to progressive arteriolar degeneration.

Dr. Smith: This man's cardiac status was such that he had a high degree of chronic passive congestion. I think that much of the diminution of renal function at



When Summer Rolls Around

Vitamin D cannot be given a vacation, because supplementation is as important in the summer as it is in winter. In substantiation, leading nutritionists point to the presence of rickets in sunny California,[1] and to the danger of breaking a good habit once it is developed.[2]

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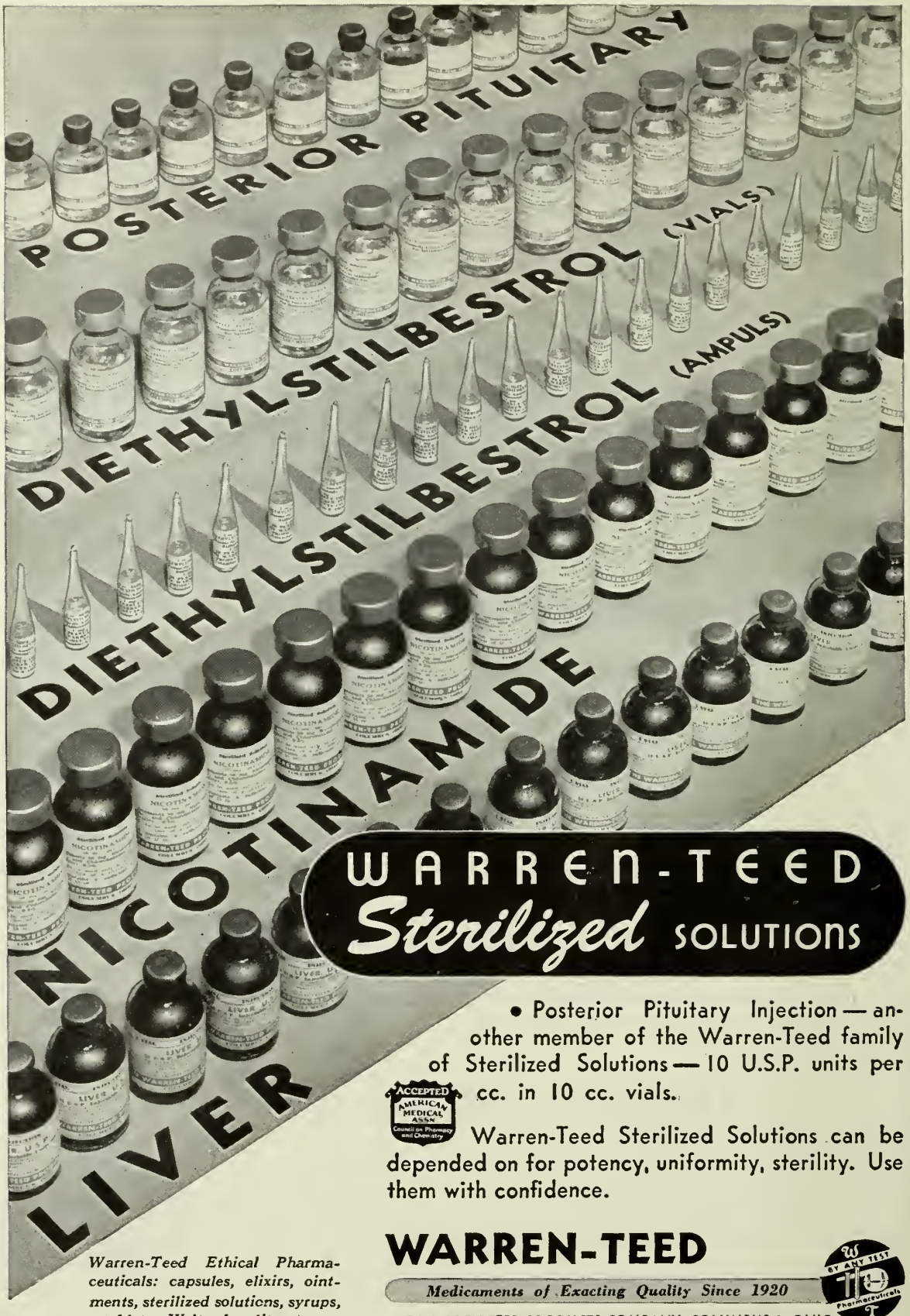
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1. Am. J. Dis. Child. **54**: 1227, 1937. 2. The Vitamins, Chicago, American Medical Assn., 1938, p. 524.



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the end was due to that factor and I would suggest that there were few changes of nephrosclerosis in the kidneys.

DR. HAROLD BULGER: I believe there are definite changes in the kidneys as indicated by the changes in the eyegrounds.

DR. ALEXANDER: I agree with that. I expect this patient to show a considerable amount of damage in the kidneys. Dr. Smith, if a heart is enlarged to twice the normal size, is it twice as effective functionally?

DR. SMITH: No. The reason for that is difficult to state as not much is known about the myocardium. With cardiac hypertrophy of long duration there is a diminution of the nutriment carried to the myocardium. Therefore the competence of the myocardium, in spite of the enlargement of its elements, is not necessarily increased. Some of the increase in size may be hypertrophy, but a great deal may be dilatation. In other words, the relative vascular supply to the myocardium of a hypertrophied heart is less than that of a normal heart. Wearn showed this anatomically and Tinsley Harrison showed that the hypertrophic myocardium requires considerably more oxygen than the normal myocardium.

DR. ALEXANDER: If an individual has essential hypertension for a long period of time and his heart becomes enlarged, is he left with a better heart after treatment by sympathectomy and the subsequent reduction of the blood pressure?

DR. SMITH: Theoretically it would be no better because of the hypertrophy.

DR. ALEXANDER: Do you accept that, Dr. Massie?

DR. MASSIE: Anatomically the heart would be better only if it decreased in size. It is probably a good rule in cardiology to say that when a heart is large it is diseased and when it is small it is not diseased. There is one notable exception to this rule—constrictive pericarditis.

DR. ALEXANDER: When you say "diseased" do you mean that it is functionally impaired or anatomically diseased?

DR. MASSIE: I mean, it is functionally impaired and also, although not always, anatomically diseased. Frequently fibrosis can be demonstrated in a hypertrophic heart. The remaining muscle is good muscle.

DR. ALEXANDER: Dr. Moore, will you comment on this?

DR. ROBERT MOORE: I agree with Dr. Smith that an enlarged heart is not as capable as is a normal sized heart. The hypertrophic heart is not equal to the normal heart, even in proportion to its increased weight, in terms of function.

DR. ALEXANDER: Is there anything in the muscle that can be detected microscopically to indicate that it is not good muscle?

DR. MOORE: I do not think so. I do not believe that the amount of fibrosis seen in these hearts can account for the loss of function.

DR. ALEXANDER: On admission the patient was badly decompensated and digoxin was administered. What is the value of this form of digitalis, Dr. Smith?

DR. SMITH: Digoxin is one of the purified glucosides extracted from Digitalis lanata. It is similar in its action to lanatacide "C" but perhaps a little more toxic. When administered by mouth, by vein or intramuscularly it gives an effective and prompt digitalis action. It is, therefore, one of the drugs that can be used for rapid digitalization.

DR. ALEXANDER: Dr. Massie, on admission did the patient's electrocardiogram show marked change?

DR. MASSIE: The records on this patient show many different things and they do not permit a diagnostic interpretation. Record No. 1 shows myocardial damage on the basis of a flat T wave in lead I and diphasic T wave in lead II. The rest of the record was normal.

DR. ALEXANDER: Do you consider the first electrocardiogram one that reflects the degree of failure that this man had?

DR. MASSIE: No. Usually one sees much more in a patient who has the cardiac failure and the long hypertension that this man had. Record No. 2 was taken the day following admission and after administration of digoxin intravenously. It was read as supraventricular tachycardia because the rate was rapid, approximately 160 per minute. There were no T waves. The mechanism was regular and the QRS complexes were normal in their configuration, meaning that this was not ventricular tachycardia. It came from a supraventricular focus. Whether it was auricular tachycardia or a nodal tachycardia cannot be determined. The T waves were down on the precordial lead and, if just this one record were seen, it would be impossible to judge whether this was an abnormal heart or whether the rapid heart action itself would produce electrocardiographic changes in the T waves by virtue of decreased coronary circulation.

DR. OLMSTED: What about the take-off of the ST segment of lead IV?

DR. MASSIE: A take-off of the type seen in lead IV cannot be considered significantly abnormal in a patient with tachycardia. This will become more evident subsequently. Record No. 3 showed auricular fibrillation. It was irregular and there were no true T waves. There was evidence of digitalis effect on the basis of somewhat depressed ST segments in leads II and III and some ventricular extrasystoles. The QRS complex in lead I was no longer upright but tended to be diphasic. Record No. 4 showed a somewhat slower rate but the QRS complex was upright again. There was no axis deviation and there were fewer extrasystoles. Record No. 5 was taken about thirty minutes before death so it was really a terminal record. It showed a specific right axis deviation. There was depression of the ST segment in lead II, which is more marked in lead III. The patient had had digitalis which might account for this latter change. However, digitalis effect will not explain the right axis deviation. In lead IV, CF2 and CF4 showed an upswing in the ST elevation but it was not an elevated ST segment as seen with coronary disease. On the basis of this record it cannot be said that this patient had an acute myocardial infarction. The possibility of pulmonary embolism is suggested by the right axis deviation shortly before death and by the ST segment changes.

DR. ALEXANDER: On admission the patient had a regular rhythm but after being digitalized he developed fibrillation. What do you believe happened?

DR. MASSIE: That could occur in the natural course of the disease but is unusual. Another unusual feature is the production of supraventricular tachycardia in a patient who is being digitalized. This is indicative of stimulation of the auricle, sino-auricular node, or adjacent portions of the auricle in an abnormal manner. Therefore, auricular fibrillation associated with supraventricular tachycardia might mean digitalis intoxication, which may have been the cause of death in this case.

DR. ALEXANDER: Would it be unusual for fibrillation to occur in a heart that was well digitalized and that, on admission, had a regular rhythm?

DR. MASSIE: It is not the usual course of events but neither is it rare.

DR. WOOD: The history notes that just before death the patient had a severe attack of pain which could hardly be explained by digitalis intoxication. It is evident that something else must have happened.

DR. ALEXANDER: It is true that digitalis intoxication may not have been the cause of death but from symptoms described in the history—nausea under digitalis administration, extrasystoles and electrocardiographic signs of digitalis effect—it is possible that the patient had some intoxication. However, I do not believe it was the cause of death.

Dr. Llewellyn Sale, Sr.: Could the electrocardiographic changes be accounted for on the basis of interference with the coronary circulation?

Dr. Massie: That is possible.

Dr. Sale: If there were a dissecting aneurysm that dissected proximally, there might be enough interference with the coronary blood supply to cause coronary insufficiency.

Dr. Alexander: Dr. Moore, you saw this patient just before his death and we would like to hear your opinion.

Dr. Carl Moore: When I saw this patient he had been given two hypodermics of morphine so that he was no longer writhing in pain. He was sitting propped up in bed and seemed slightly cyanotic. There was no obvious venous distention and he was not breathing as rapidly as is usual with a massive pulmonary embolus or infarct. The heart sounds were faint. Dr. Lippman can probably tell you more than I can.

Dr. Bernard Lippman: The patient had a severe pain directly over the sternum. The blood pressure was 160/90 and he had a paradoxical pulse.

Dr. Olmsted: Was the fall in blood pressure coincident with the onset of pain?

Dr. Lippman: Upon onset of pain the blood pressure was 160/90. About ten minutes after start of pain the patient was in shock.

Dr. Alexander: Dr. Olmsted, does pain of that kind occur with a pulmonary infarct?

Dr. Olmsted: No. The striking picture is dyspnea and pain.

Dr. Alexander: Dr. Sale, does terrific crushing pain occur at the onset of pulmonary infarct?

Dr. Sale: No.

Dr. Alexander: Dr. Massie, what is your opinion?

Dr. Massie: It is not usual but I believe it may occur. That type of pain would be more in keeping with coronary thrombosis.

Dr. Alexander: What other possibilities are there?

Dr. Sale: He may have had a dissecting aneurysm that ruptured.

Dr. Alexander: If this patient had a ruptured aneurysm, would there have been changes in the electrocardiogram, Dr. Massie?

Dr. Massie: There would be no characteristic changes.

Dr. Wood: I think Dr. Sale has made an excellent suggestion as to the diagnosis. The possibility of dissecting aneurysm should always be considered when a patient who has hypertension develops sudden, terrific substernal pain. Most of the patients with dissecting aneurysm do have hypertension and the clinical picture is often like that of coronary occlusion.

Dr. Alexander: No mention has been made of the fact that the patient had hematuria a year previous to admission. It may not be of any importance but it should be mentioned.

ANATOMIC DIAGNOSIS

Chromatropic degeneration of the media of the aorta.

Rupture of the aorta near the orifice of the left coronary artery.

Dissecting aneurysm of the ascending aorta, the arch of the aorta and the bases of great vessels of the neck with rupture into the pericardial cavity and mediastinal tissues.

Extension of the hemorrhage along the coronary arteries and the right pulmonary artery and its branches into the substance of the right lung.

Chronic pyelonephritis, bilateral, advanced.

Arteriolar nephrosclerosis, moderate.

Hypertrophy and dilatation of the heart (600 grams).

PATHOLOGIC DISCUSSION

Dr. Moore: This patient had advanced chronic pyelonephritis, extensive scarring of the kidney, arteriolar nephrosclerosis of a moderate grade, hypertrophy and dilatation of the heart, and only moderate arteriosclerosis of the aorta. Probably one hour before death the aorta ruptured as we do not find any evidence, from microscopic studies of the tissues around the aortic root, that there has been blood in this tissue for any period of time. The aorta ruptured part way through the wall and dissected proximally to the base of the heart and distally to the approximate level of the diaphragm. The aneurysm ruptured into the pericardial cavity and the pericardial sac was distended with blood. Blood also dissected along the great truncal tissue into the right lung.

In microscopic study of the aortic wall in the neighborhood of the rupture a typical picture of chromatropic degeneration or idiopathic medial necrosis was seen. No cysts were found so that the full term idiopathic cystic medial necrosis cannot be applied. There was extensive change in the aortic media with appearance of a granular, acellular material which stained slightly basophilic.

In a section at the point of rupture the separation of the aortic media was seen with about 50 per cent on the inside and 50 per cent on the outside. The rupture was of recent origin. If it had occurred long before death, evidence of repair would have been seen. Anatomically, we consider that the rupture was of recent origin, that is, consistent with the clinical history of one hour.

In a section of the coronary artery there was evidence of extensive coronary arteriosclerosis with diminution of the diameter of the lumen. The blood around the coronary arteries was in the adventitia. The dissection did not extend along the coronary artery and on that basis I would conclude, anatomically, that the coronary arteriosclerosis was more important than the blood around the vessel. When there is occlusion of the coronary arteries by dissecting aneurysm the media of the artery itself is usually split apart.

In a section from the lung the same phenomenon was seen. Blood extended out through the perivascular tissue but not in the wall of the artery itself.

In a section of the kidney, extensive pyelonephritis was seen. There were slight interstitial fibrosis and cellular infiltration of arteriolar nephrosclerosis.

In summary, we found at autopsy that this patient had vascular disease of the smaller blood vessels, and enlargement of the heart. Shortly before death there was a rupture of the aorta with the formation of a dissecting aneurysm and finally rupture of that aneurysm into the pericardial sac.

Dr. Alexander: Is this type of degeneration of the aortic wall part of the arteriosclerotic picture?

Dr. Robert Moore: It is not a part of arteriosclerosis not a part of syphilis. It is a distinct disease, the causation of which is entirely unknown. It is the basis of rupture of the aorta in almost every instance. Syphilitic aortas do not rupture and arteriosclerotic aortas do not rupture, but when this lesion is in the aortic media, rupture may occur.

Dr. Sale: Is this type of medial necrosis seen in persons with syphilis?

Dr. Robert Moore: Yes, it may occur but is probably not caused by the syphilitic infection.

Dr. Cyril MacBryde: Is this the same type of lesion that was described by Dr. Kountz and Dr. Hempelmann in the patients who had hypothyroidism?

Dr. Robert Moore: Yes.

Dr. MacBryde: Do you think that hypothyroidism is just one of the possible causes of this degenerative lesion?

Dr. Robert Moore: I think so. Hueber has collected a great deal of experimental evidence to indicate that this lesion is rather consistently associated with hypotension.

Dr. Robert Moore: One member of the faculty had hematuria in mind, Dr. Alexander, in that he made a diagnosis of a tumor of the kidney.

DR. WOOD: Dr. Moore, I would like to mention that the hematuria could be explained on the basis of "renal epistaxis," which occurs in hypertension.

CASE 70

PRESENTATION OF CASE

A. A., a 68 year old farmer, entered Barnes Hospital on the Surgical Service on December 12 and died December 19, 1944. An accurate history was difficult to secure because the patient was confused and no immediate member of the family was present.

Chief Complaint.—Abdominal pain.

Family History.—Irrelevant.

Past History.—The patient's general health before the onset of the present illness had been excellent. He had had a mild attack of pneumonia twenty-two years previously. The patient stated he had been taking "kidney medicine" prescribed by a local physician during the last year but he could not recite the symptoms for which this was given. He had been a hard-working farmer. During his early life he had been in the habit of drinking a good deal of alcohol but had not for the last thirty-five years.

Present Illness.—Two years previous to admission the patient first noted a gradual decrease of his appetite. Six months before admission he had an attack of upper abdominal pain associated with a chill. The pain lasted during the day and finally was relieved by a hypodermic injection. During the following six months seven similar attacks occurred. Each of these appeared to be more severe than the preceding attack and each was associated with chills. The final attack was described as having had a sudden onset. The pain began in the right upper quadrant of the abdomen and radiated toward the umbilicus. It was intermittent but very severe. Vomiting of green material occurred once. Shortly after onset the presence of yellow skin and eyes was noted for the first time. The patient was admitted to a local hospital and there an unstated amount of sulfonamide drugs was administered. Considerable distention of the abdomen soon followed. Two days previous to admission a cough developed with production of a considerable amount of phlegm. During the present illness there had been a questionable loss of weight.

Physical Examination.—Temperature was 37 C., pulse 88, respiration 24, blood pressure 84/45. The patient was large and muscular. He appeared acutely ill and was disoriented and apparently short of breath. The skin was yellowish-orange in color, as were the sclerae. There was an erythematous eruption over the thorax and anterior abdomen. No purpuric spots were recorded. The pupils were small but reacted to light and accommodation. There were dried crusts of blood in the left nostril. The tongue was thick and dry and covered with a dark brown coating. The pharynx was injected and there was postnasal discharge. The mouth was edentulous. The breath was foul but not uremic. The trachea was in the midline. At the

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bases of both lungs, particularly over the right, there was some dulness to percussion. Over this area a friction rub could be both heard and felt with respirations. Breath and voice sounds were not recorded. Rales were heard over both lower lobes. The apex of the heart was felt in the mid-axillary line. The rhythm was irregular with extrasystoles. Over the precordium a systolic murmur was heard. This was intensified over the mitral area. No pericardial sounds were recorded. The abdomen was distended and everywhere tympanitic. There was some muscle guard and rigidity everywhere and generalized tenderness, most marked in the epigastrium. No masses or organs were felt. The scrotum appeared dark red and slightly swollen. The prostate was enlarged about one and one half times normal size. There was a slight edema over the sacrum but none over the extremities. The tendon reflexes were physiologic.

Laboratory Findings.—Blood count: red cells 3,890,000, hemoglobin 12.6 gms., white cells 21,200, differential count: stab forms 7 per cent, segmented forms 85 per cent, lymphocytes 8 per cent, monocytes 4 per cent. Urinalysis: specific gravity 1.014, albumin, sugar and microscopic examination negative, bilirubin negative, urobilin positive. Stool examination: light tan in color, guaiac 4 plus. Blood Kahn reaction was negative. Blood chemistry: sugar 95 mgs. per cent, nonprotein nitrogen 168 mgs. per cent, total proteins 4.4 gms. per cent, albumin 2.6, globulin 1.8, amylase 90 units, chlorides 293 mgs. per cent, cephalin flocculation 2 plus, CO_2 combining power 79.9 volume per cent, sulfadiazine level 6.0, icterus index 150. Prothrombin time was 38 seconds, control 25 seconds. Leptospiral agglutination test was negative. Electrocardiogram showed the T segments depressed in leads I and II. Interpretation was auricular premature contractions and left axis deviation.

Course in Hospital.—Venous pressure taken the day after admission (uncertain because of the patient's lack of cooperation) was 120 mm. H_2O, circulation time 23 seconds. There was a rapid suppression of the urine until but a few cubic centimeters were passed in twenty-four hours. The nonprotein nitrogen gradually rose to 265 mgs. per cent. A definite uremic frost appeared and spread over the entire skin. The eruption present on admission gradually became more intense and diffuse. It was erythematous and hemorrhagic spots appeared on the left arm. The patient lapsed into coma. The blood pressure remained low and ranged between 80 and 100 systolic and between 40 and 60 diastolic. There was an irregular fever of about 38 C. and at one time the temperature reached 39 C. The patient was fully digitalized. He developed Cheyne-Stokes respirations, edema gradually became generalized, the coma became more pronounced and he died quietly.

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CLINICAL DISCUSSION

Dr. Harry Alexander: This patient apparently had been in good health until about two years before admission to the hospital at which time he began to notice a loss of appetite. Approximately six months before admission he began to have recurrent attacks of abdominal pain which seemed to center in the right upper quadrant and radiated to the umbilicus. These attacks of acute pain were associated with chills. Dr. Scheff, to what do you attribute these attacks of pain?

Dr. Harold Scheff: The most frequent causes of acute upper abdominal pain, associated with chills and fever, are obstruction of the common duct and disease of the gallbladder with stones. This is especially true if the attacks are recurrent in a person of this age.

Dr. Alexander: Do you believe, in this case, that these attacks were due to gallbladder disease with stones or to a stone in the common duct?

Dr. Scheff: According to the history, the patient had a jaundice also. Therefore, if the stones were the cause of the jaundice, they would have to be in the common bile duct.

Dr. Alexander: But the jaundice appeared only in the last attack.

Dr. Scheff: Then the original attacks may have been due to an obstruction of the cystic duct.

Dr. Alexander: Is it usual to have chills with attacks of cholelithiasis or "gall stone colic"?

Dr. Scheff: Perhaps not usual, but they may occur.

Dr. Alexander: Then you think that this patient had gallbladder disease with stones and that he had repeated attacks of acute cholecystitis.

Dr. Scheff: He could have had hydrops of the gallbladder, which would also cause the high fever; that is, without pus in the gallbladder itself. I do not know the explanation for that but it does occur.

Dr. Alexander: Do you agree with this, Dr. Heinbecker?

Dr. Peter Heinbecker: It is rather unusual to have such high fever with simple hydrops of the gallbladder.

Dr. Alexander: Dr. Olmsted, is it your belief that this patient originally had repeated attacks of cholecystitis with stones and that the last attack was associated with stones in the common duct which resulted in jaundice?

Dr. William Olmsted: Not entirely. The course of the disease does not suggest gallbladder colic. He could have had necrosis of the liver, with which it is possible to have recurrent, periodic attacks of pain and chills. This patient's age and sex also suggest a hepatorenal syndrome.

Dr. Alexander: Is it possible to develop necrosis of the liver from repeated attacks of acute cholecystitis?

Dr. Olmsted: Yes. I think that is possible.

Dr. Alexander: Dr. Wood, do you believe this patient had repeated attacks of gall stone colic associated with cholecystitis or do you believe necrosis of the liver was present? Or do you have any other suggestions to explain the early manifestations of pain?

Dr. W. Barry Wood: I agree with Dr. Olmsted that it is difficult to explain the final picture on the basis of gallbladder disease unless it is postulated that, in the last attack, the stone became impacted in the common duct and the patient developed severe cholangitis with abscesses in the liver. According to the history, this patient had consumed a large amount of alcohol at one time in his life. This makes me wonder if he had generalized liver disease, possibly subacute yellow atrophy.

Dr. Alexander: That is quite possible. However, the point we are trying to establish is, what happened before the final attack of jaundice?

Dr. Wood: The attacks of pain, during the six months previous to the final attack of jaundice, could have been due to subacute yellow atrophy.

Dr. Alexander: Then would you expect to find stones in this case?

Dr. Wood: Yes, I would expect to find stones. I am only raising this other possibility for discussion.

Dr. Scheff: It is true that the commonest cause for attacks of right upper quadrant pain is gallbladder disease with stones but, in this particular case, I agree that intrinsic liver damage is probably a better diagnosis.

Dr. Alexander: Do you believe that attacks of acute gallbladder disease eventually can affect the liver?

Dr. Scheff: Lipschutz states that it can occur.

Dr. Wood: Dr. Alexander, I think that everyone agrees, up to this point, that this patient had severe liver damage. The question is whether there was or was not associated gallbladder disease.

Dr. Alexander: It has been suggested that this patient had hepatorenal syndrome but the findings are not indicative of this type of syndrome. The albumin globulin ratio was not reversed, the cephalin flocculation was only 2 plus and, although the prothrombin time was high, that alone would not be sufficient evidence for the hepatorenal syndrome. On the basis of these findings would you consider that he had severe liver damage, Dr. Wood?

Dr. Wood: When I saw the patient he was jaundiced and he also had a definite uremic frost. I had the impression, from just looking at him, that he had severe liver damage.

Dr. Scheff: A disturbing feature to me is the absence of bile in the urine.

Dr. Alexander: Yes, that is disturbing. He had urobilinogen but no bile in the urine.

Dr. Wood: That is somewhat difficult to explain, especially if it is postulated that the patient had no obstruction of the common duct leading to cholangitis.

Dr. Alexander: Since he had urobilinogen, but no bile in the urine, do you think it could conceivably be jaundice due to something other than common duct obstruction?

Dr. Wood: Even if it was acute yellow atrophy and there was nothing in the common duct there should have been bile in the urine.

Dr. Alexander: So far, it is thought that this patient either had attacks of gall stones with acute cholecystitis or acute attacks of hepatitis. Dr. Bulger, what is your opinion on this point?

Dr. Harold Bulger: I am impressed with the possibility of hepatitis following cholelithiasis.

Dr. Alexander: That was emphasized in Dr. Graham's book. The threat of gallbladder disease is not the threat of the lesion itself but it was the consequence of the lesion and its effect on the liver.

Dr. Wood: I wonder if Dr. Heinbecker would comment on that point, namely, will repeated attacks of acute cholecystitis tend to damage the liver seriously? I refer not to gall stones *per se* but to acute cholecystitis.

Dr. Heinbecker: I would say that such attacks would damage it only moderately and they do not customarily lead to damage of the degree found in this case.

Dr. Alexander: If a stone was present and it entered the common duct from the gallbladder, effecting an obstruction in the duct, would damage to the liver be greater than in a situation involving gall stones without obstruction?

Dr. Heinbecker: I think that is the customary way in which damage to the liver is produced; namely, by obstruction of the common duct with infection.

Dr. Alexander: Then this patient either had stones with acute cholecystitis obstructing the common duct or he did not have any stones and the pain was all due to hepatitis.

Dr. Scheff: Another possible cause for this acute upper abdominal pain is acute pancreatitis.

Dr. Alexander: Does the pain of pancreatitis localize in the right upper quadrant?

DR. SCHEFF: It may localize any where in the upper abdomen or about the umbilicus.

DR. ALEXANDER: This is correct but where does it usually localize?

DR. SCHEFF: High in the epigastrium, radiating to the back.

DR. ALEXANDER: Dr. Olmsted, how would you explain the high nonprotein nitrogen?

DR. OLMSTED: I do not know how to explain it.

DR. ALEXANDER: Would a circumstance like this be in keeping with a hepatorenal syndrome?

DR. OLMSTED: Do you mean the high nonprotein nitrogen?

DR. ALEXANDER: Yes, as well as the amount of hepatic damage and the other circumstances in this case.

DR. OLMSTED: I think the high nonprotein nitrogen is indicative of liver damage. However, I would like to know if the high nonprotein nitrogen explains the absence of bile in the urine.

DR. ALEXANDER: I do not know. Dr. Bulger will you answer that question, please?

DR. BULGER: I think it could. I know in the diabetic patient with a high blood acetone there may be no acetone in the urine, if there is severe renal damage.

DR. ALEXANDER: That is a good point. You infer, therefore, Dr. Olmsted, that there was no bile in the urine because the kidneys were unable to excrete it.

DR. OLMSTED: Yes.

DR. WOOD: We should perhaps introduce another factor; namely, that the patient had been given sulfonamide drugs which will also affect the renal tubules.

DR. ALEXANDER: However, if there was tubular damage, there are two factors I would wonder about—there were no casts in the urine nor was there any albumin in the urine. Also, with purely tubular damage, how do you explain the high nonprotein nitrogen?

DR. WOOD: Retention of nitrogen occurs in diseases in which there is tubular damage. An excellent example of this is bichloride of mercury poisoning.

DR. ALEXANDER: Dr. Heinbecker, why does a patient with tubular damage have a high nonprotein nitrogen?

DR. HEINBECKER: I believe it is because of a greater than normal tubular absorption of the nonprotein nitrogen that is filtered through the glomeruli.

DR. ALEXANDER: Do you believe that this case is characteristic of the hepatorenal syndrome, Dr. Massie?

DR. EDWARD MASSIE: I would like to ask one question before answering this. The patient had a uremic frost. Does that usually develop precipitously or does it indicate that there is a longer duration of uremia than would be presupposed in this patient?

DR. ALEXANDER: I do not know. Dr. Wood, can you answer that question?

DR. WOOD: It is my impression that it will not take long for the precipitation to take place provided the nonprotein nitrogen is high enough.

DR. MASSIE: In regard to the hepatorenal syndrome, it is seen more frequently in surgical cases than in medical cases. I hesitate to suggest that this patient had hepatitis around the area of the gallbladder. This patient probably had cirrhosis or some other chronic liver disease as well as an acute superimposed lesion.

DR. ALEXANDER: Do you believe this is prerenal azotemia with normal kidneys or would you think there had been considerable renal disease?

DR. MASSIE: In the hepatorenal syndrome there is a great amount of tubular damage plus some glomerular damage. Also, because of the age factor, the degree of renal insufficiency is likely to be greater in this man than in a younger patient. I feel sure this patient had a great deal of tubular damage as well as some evidence of vascular nephritis, which would be expected in a patient 68 years of age.

DR. ALEXANDER: What is bile nephrosis, Dr. Massie?

DR. MASSIE: Bile nephrosis was at one time considered the cause of hepatorenal syndrome. In other words, those persons who originally described this syndrome said that the reason an individual gets tubular

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damage in liver disease is due to the excessive amount of bile brought to the kidney. However, that theory recently has been disproven.

Dr. Alexander: You believe that all cases of the hepatorenal syndrome will show structural renal lesions?

Dr. Massie: Yes.

Dr. Alexander: Fishberg also comments on this point. He states that, microscopically, some tubular degeneration may be found, but that compared with the usual kidney that retains a high nonprotein nitrogen, the evidence of renal damage is insignificant.

Dr. B. Y. Glassberg: What is the explanation for the low blood chlorides?

Dr. Alexander: Low blood chlorides are common in prerenal azotemia. Is that not true, Dr. Bulger?

Dr. Bulger: That is the picture in most cases.

Dr. Alexander: Are there any further comments?

Dr. Carl Harford: I think the diagnosis should in some way explain the rash that the patient had. I saw the patient and the rash was an impressive one.

Dr. Alexander: To what did you think it was due?

Dr. Harford: I thought it was possibly from the sulfonamide drugs that had been administered.

Dr. Alexander: We must also remember that this man had pulmonary lesions on admission to the hospital, he had a friction rub and rales, he had fever and he had a leukocytosis. A pleural friction rub is uncommon in hepatorenal syndrome.

Dr. Wood: Dr. Alexander, I would like to ask what you think the lesion in the liver is. Secondly, would you venture a description of the lesion in the kidney?

Dr. Alexander: If this case is one of hepatorenal syndrome, then it would suggest either acute hepatitis or cirrhosis. I do not think this man had cancer but I do think he had acute or subacute hepatitis.

Dr. Wood: I agree with that. Do you think he had gall stones?

Dr. Alexander: I would not be surprised.

Dr. Wood: Do you think the kidneys will show anatomic lesions?

Dr. Alexander: It is quite probable because they were insulted by sulfonamide drugs. Also, in the hepatorenal syndrome, some tubular damage usually is seen.

Dr. Scheff: In that case, this may not be a hepatorenal syndrome *per se*. This patient did not, in my opinion, have enough liver damage to produce the severe renal changes.

ANATOMIC DIAGNOSIS

Chronic cholecystitis.

Stones in the common bile duct.

Dilatation of the extrahepatic and intrahepatic biliary radicles.

Generalized icterus.

Obstructive biliary cirrhosis, slight.

Dilatation of the pancreatic ducts, slight.

Fibrosis of the pancreas, slight.

Recent and organizing thrombi in the portal vein and its intrahepatic branches.

Bile nephrosis.

Focal interstitial inflammation and arteritis in kidney and lung.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: There were stones in the common bile duct bringing about complete obstruction of that duct. The obstruction had been present for some time because the biliary system above the point of obstruction was dilated. There was further evidence that the obstruction had been present for some time since the liver was firmer than normal indicating the presence of a biliary cirrhosis of the obstructive type. The stones also brought about obstruction of the pancreatic ducts since they likewise were dilated. In addition, this patient had thrombi occluding the hepatic radicles of the portal vein and extending into the main portal vein at the hilum of the liver.

The kidneys were enlarged and were manifestly the seat of a nephrosis. I think it would be logical to assume that the degree of nephrosis was out of proportion to the amount of hepatic damage. The liver was firm and did not have the gross characteristics of necrosis of the liver as seen in hepatorenal syndrome.

In a section of the liver it was seen that the liver cells were fairly well preserved. The nuclei were intact and the cytoplasm was reticulated finely or vacuolated which is the type of cytoplasm expected in a patient who had an adequate carbohydrate storage in the liver. The liver was certainly not the seat of any acute necrotizing change. This patient did not have, anatomically, acute or subacute yellow atrophy.

The portal spaces were slightly increased in extent. There was increase of the periportal connective tissue, multiplication of bile ducts and infiltration with lymphocytes. That is the typical appearance of obstructive biliary cirrhosis. However, it was not extensive so one might conclude that the history of twelve days obstruction to the common duct was consistent with the anatomic change brought about by the obstructed duct.

In a section from the tissue about one large bile duct, there was multiplication of the bile ducts and a great deal of cellular infiltration with lymphocytes, mononuclear cells, plasma cells and a few polymorphonuclear leukocytes. The connective tissue around the smaller bile ducts had been activated in the sense that there was slight edema and the fibroblasts were prominent with large, pale nuclei. In this region, and in other parts of the liver, there was no evidence of intrahepatic infection or inflammation. There was no exudation into the lumen as would be seen in an interluminal cholangitis. However, I believe there is evidence here for a pericholangitis. The thrombi in the portal vein have been present for some time. Judging from the gross appearance of the thrombi, we concluded that the thrombosis started in the intrahepatic radicles and that the thrombus in the main portal vein was the most recent and represented a propagation. I cannot say definitely why this patient developed thrombi in the portal vein. It is possible that the cholangitis may have been of such a degree at one point that there were changes in the wall of the portal vein. However, that is most unusual.

In a microscopic section of the pancreas there was clear evidence of dilatation of the small ducts and inspissation of material within the lumens of those ducts. However, there were no atrophy of the parenchyma, no change in the islands and no increase of connective tissue. This indicates that the cut had been obstructed for a short period of time, which agrees with the idea of twelve days duration for the stones in the common bile duct.

In summary, in the biliary system, we found chronic cholecystitis, stones blocking the common duct and the pancreatic duct for a relatively short period of time, and dilatation of those ducts; slight biliary cirrhosis with a moderate pericholangitis, and thrombi filling the intrahepatic radicles of the portal vein.

In the kidneys an extreme degree of edema of the interstitial tissue of the kidneys was seen. There were no significant changes anatomically in the glomeruli nor any increase in the number of nuclei. There were no changes in the endothelial cells. The glomerular capillaries were widely patent. There were rather marked changes in the tubular epithelium in that there were degenerative changes of all types including necrosis. There were expanses of renal epithelium without nuclei and the lumens were filled with granular precipitate. A third lesion was a focal, cellular infiltration in which approximately 50 per cent of the cells were eosinophilic leukocytes. Some were directly as-



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sociated with a necrotizing lesion in the small blood vessels.

Pigmentation of the renal epithelium with bile pigment was not seen as would be expected in a bile nephrosis. The anatomic changes, in so far as the tubules are concerned, were quite consistent with the hepatorenal syndrome. However, I do not believe the presence of blood in the tubules is consistent with that and I do not believe that the cellular infiltration is consistent with it. Therefore, it is necessary to find some other explanation than bile nephrosis and hepatorenal syndrome.

This patient had a mild degree of arteriolar nephrosclerosis as evidenced by the thickening of the basement membrane inside the glomeruli and the thickening of the arterioles.

In a microscopic section of the lung the small blood vessels were surrounded by a cellular infiltration of mononuclear cells, lymphocytes and some eosinophilic leukocytes. In the alveoli there were mononuclear cells and a small amount of precipitated albumin, but no polymorphonuclear leukocytes. In the walls of the alveoli, the same cellular infiltration of mononuclear cells, plasma cells and eosinophilic leukocytes was seen. In some instances this lesion had gone on to necrosis—a necrotizing arteriolar disease involving the lung associated with a peculiar type of inflammation which is an interstitial type of pneumonia.

In conclusion, we believe that this patient had a marked nephrosis and, in addition, a vascular reaction in the kidney and the lung as the result of the sulfonamide drug. This is the type of histologic change that has been described with the sulfonamide drug. Perhaps a minor part of the tubular damage was related to the jaundice, but the major part of the damage came as a result of reaction to the sulfonamide drug. It was not a simple toxic type of tubular damage but a peculiar type of vascular interstitial reaction bringing about inflammation and necrosis of the walls of the blood vessels.

DR. WOOD: This case illustrates how therapy sometimes complicates clinical medicine. It seemed at first glance that this case was one of stones in the common duct but the course was tremendously complicated by the sulfonamide treatment. A lead was given to us in the discussion when Dr. Harford commented upon the skin rash. The history also recorded the existence of a high level of sulfonamide in the blood.

DR. ROBERT MOORE: I am glad you have pointed out the relative importance of these factors. This man had had chronic cholecystitis, cholelithiasis and some cardiovascular renal disease. Twelve days before death the stones in the gallbladder dropped down into the common duct. There was some change from that but it was not a serious disease so far as immediate prognosis was concerned. However, he was given sulfonamide in treatment and the drug brought about serious lesions in several organs and finally led to his death.

INCIDENCE OF PERFORATED ULCER LOW

The total incidence of perforated ulcer, the most serious complication in this stomach condition, is substantially small, it is reported in *The Journal of the American Medical Association* for June 9. Only about 8 per cent or less of the ulcers, according to figures cited, perforate or penetrate the tissues. The figures cannot be considered definite, however, since the number is dependent on two variable factors, the activity of the ulcer and the period of time under consideration. The possibility of perforation can be reduced to a a minimum by adequate treatment of the ulcer until healed, by continuation of an ulcer diet to prevent recurrence and by examination at regular intervals.

BOOK REVIEWS

PRINCIPLES AND PRACTICE OF SURGERY. By W. Wayne Babcock is a proponent of the use of wire sutures, ple University; Acting Consultant, Philadelphia General Hospital. With the Collaboration of Members of the Faculty of Temple University. Illustrated With 1141 Engravings and 8 Colored Plates. Philadelphia: Lea & Febiger. 1944.

An amazing amount of material has been compressed into these 1331 pages. Thirty-seven of Babcock's faculty associates are listed as collaborators, but no sections of the book are signed by individuals.

This volume is, in part at least, a revision of the second edition of the author's "Textbook of Surgery," and some obsolescent ideas have been retained, for example: in treatment for pulmonary complications of operations on the stomach, quinine sulphate (10 grains) suppositories every three hours are advised. Surely penicillin or the sulphonamides are preferable.

Babcock is a proponent of the use of wire sutures, and time and experience will probably further popularize their use. He also advocates the use of glass lamp chimney and sump drains. These contributions to surgical technic may be of considerable value but, so far as this reviewer knows, they have not been adopted or tried by other surgeons. It would seem that a report from other clinics on their effectiveness and usefulness would be highly desirable.

Differing from most other surgeons, Babcock favors perineal to abdominal colostomy, which he finds possible in most cases. Certainly most patients would prefer a perineal colostomy if it could be controlled. Unfortunately, no satisfactory perineal dressing has ever been devised, and control by diet and enemas seems rather unreliable.

This volume is a credit to Babcock and the Temple University group; it is a worth while addition to any surgeon's library. B. S. P.

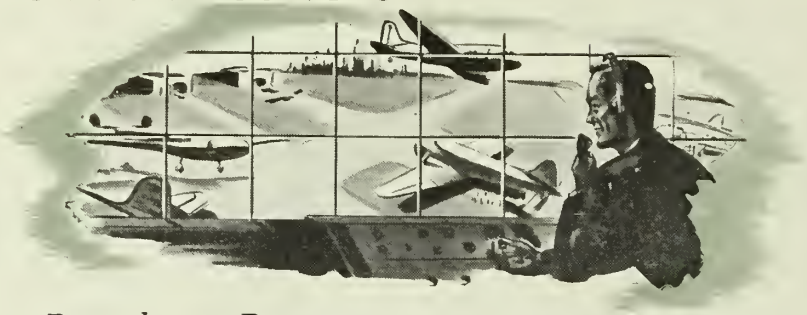
FUNCTIONAL DISORDERS OF THE FOOT. Their Diagnosis and Treatment. By Frank D. Dickson, M.D., F.A.C.S. Associate Professor of Clinical Surgery, Medical School, University of Kansas; Orthopedic Surgeon, St. Luke's, Kansas City General, and Wheatley Hospitals, Kansas City, Missouri; Providence Hospital, Kansas City, Kansas. And Rex L. Diveley, A.B., M.D., F.A.C.S. Colonel, Medical Corps, Army of the United States; Orthopedic Consultant, European Theater of Operations; Orthopedic Surgeon, St. Luke's, Kansas City General, Research, and Wheatley Hospitals, Kansas City, Missouri; Providence Hospital, Kansas City, Kansas. 202 Illustrations. Second Edition. Philadelphia: J. B. Lippincott Co. 1944. Price $5.00

In the introduction to the first edition the authors call attention to the fact that the medical profession as a whole has failed to evaluate the seriousness of disabling foot conditions and give it the necessary study and attention. Most patients with functional disorders of the foot usually seek relief from nonmedical sources and because of the lack of sufficient knowledge of the underlying factors involved, relief is usually not obtained. The authors constantly have borne this thought in mind during the presentation of the entire subject matter.

The volume deals chiefly with the clinical aspects of foot disorders. A sufficient and adequate description of the anatomy and physiology are included to insure an understanding of the problems involved. Foot imbalance in childhood, adolescence and adult life is presented in detail.

In this new edition two new chapters have been added, namely, the foot in relation to military service and the foot in relation to industry, both very timely subjects. The chapter on constitutional disorders has been entirely rewritten. A method of treatment which

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the authors have used successfully is described in detail as well as other methods which have been popular in other clinics.

The book can be highly recommended to those who wish to gain a working knowledge of foot disorders. T. M. M.

SEGMENTAL NEURALGIA IN PAINFUL SYNDROMES. By Bernard Judodich, B.S., M.D. Instructor in Neurology, Graduate School of Medicine, University of Pennsylvania; Clinical Instructor in Neurology, Women's Medical College; and William Bates, B.S., M.D., F.A.C.S., F.I.C.S. Professor of Surgery, Graduate School of Medicine, University of Pennsylvania; Foreword By Joseph C. Yaskin, M.D., Professor of Neurology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa. 178 illustrations. Philadelphia: F. A. Davis Company. 1944.

This is a small, well written book of 313 pages. The print is in large type and easy on the eyes. There are numerous illustrations, and some of them are quite good. Especially to be commended are the considerations of the various diseases and treatments by using the dermatome system now so well established by the many research investigators in neural anatomy and physiology.

He has mentioned the errors in operating for neuralgic disturbances in the abdomen. Probably all or most surgeons of much experience have had a number of similar cases. He treats sciatic nerve pains in a manner which probably would be approved by most neurologists and neurosurgeons. A similar statement might hold for his treatment for trigeminal neuralgic.

This report on the experiences with the pitcher plant distillate and ammonium salts for the relief of pain are somewhat new and interesting. However, some of the many methods of infiltrating or injecting neural tissues might incur more risks than the average general practitioner would care to take or should undertake. A. L. S.

THE URINARY TRACT. Handbook of Roentgen Diagnosis by H. Dabney Kerr, M.D., Professor of Radiology, State University of Iowa College of Medicine, and Carl L. Gillies, M.D., Associate Professor of Radiology, State University of Iowa College of Medicine. Chicago: The Year Book Publisher. 1944. Price $5.50

This small but extensively illustrated volume is an excellent addition to the series of roentgen handbooks being published by the Year Book Company. While it is the atlas type, yet there is a goodly amount of descriptive material. The descriptions of the several reduced roentgenograms to a single page are amply interpreted upon the opposit page. The book is well indexed.

The sections upon bladder tumors and the deforming diseases of the prostatic urethra are especially commendable. Possibly Kerr's material has been greater than others in this particular field because of his association with Alcock and Flocks who have contributed originally and extensively upon the posterior urethra visualization. Kerr has included a bibliography of at least 150 references which could be most useful for one inclined to pursue further studies upon interests stimulated by this book.

This book will be most useful for the neophyte in radiology and to that growing number of physicians in isolated areas which cannot support a qualified radiologist and where technically good roentgen examinations may be in abundance but expert interpretation is weak. E. H. S.

CATARACT AND ANOMALIES OF THE LENS. Growth, Structure, Composition, Metabolism, Disorders and Treatment of the Crystalline Lens. By John G. Bellows, M.D., Ph.D.; Assistant Professor of Ophthalmology, Northwestern University Medical School, Chicago. With 208 Text Illustrations and 4 Color Plates. St. Louis: C. V. Mosby Company. 1944. Price $12.00

This is a complete exposition of all that is known of the crystalline lens, not only of its cataracts and anomalies but of its normal physiology, development and growth, structure, chemistry and metabolism and of its developmental defects; this preliminary to the consideration of the main interest of the book, viz., cataract and anomalies: cataracts due to trauma—physical, thermal, electrical, radiant; cataracts due to poisons, diet deficiencies, extra-ocular disorders; and culminating in the chapter on senile cataract, its occurrence, course and management, including operative treatment. Cataract in the young, congenital and juvenile also are considered. All of these subjects are considered at length and thoroughly and there is a bibliography requiring many pages. Beautifully done and beautifully illustrated, and with literary quality making it a real pleasure to read, it cannot be too highly praised. R. J. C.

PLASTER OF PARIS TECHNIC. By Edwin O. Geckeler, M.D., Associate Professor of Orthopedic Surgery, and Chief of the Fracture Service, Hahnemann Medical College and Hospital, Philadelphia. Baltimore: Williams & Wilkins Co. 1944. Price $3.00

This 220 page book is an excellent fulfillment of its title. It should be a "must" reference for every intern before—not after—he has taken his orthopedic service. It should be a help to the general practitioner puzzled over his inability to produce casts adequate in function and appearance. It is, in addition, a handy guide to certain special immobilization problems not usually encountered in general practice.

Many communities still depend upon the traveling salesman or haphazard measurements for braces and splints. Dr. Geckeler provides a method whereby the general practitioner can greatly improve this service. Explicit instructions are given for making a negative mold of the part to be fitted. This is then sent to the brace manufacturer who can fit his appliance directly, thus avoiding poor fitting as well as waiting for adjustments.

The text itself is brief since the author depends a great deal upon illustrations to carry his meaning. These are excellent reproductions of photographs in black and white and are far more explanatory than lengthy descriptive passages. They comprise more than half the book. The text is set in large clear type with adequate headings and subheadings to facilitate quick reference.

Many readers will probably wish the author had been more detailed in describing certain special casts. Others will question this or that point about some of the casts illustrated. This is, however, a text of technic, not a handbook of fracture treatment. Lastly, the author makes it clear that his book is no substitute for actual practice. There are few, however, that could not improve their plaster technic by reading it. H. S.

PENICILLIN TO TREAT RAT BITE FEVER

Four babies, all under six months of age, were treated successfully for rat bite fever with penicillin, Warren E. Wheeler, M.D., Detroit, reports in the April issue of the *American Journal of Diseases of Children*. The treatment of infections due to rat bites thus far has been unsatisfactory. The sulfonamide compounds have no effect on the microbes causing the infections, and treatment with the arsenicals has given doubtful results. Doses of 5,000 units of penicillin were injected intramuscularly into the four babies every two to three hours for a week to 10 days. This seemed sufficient, the physician stated, to control the rat bite infection.

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JULY, 1945

EDITORIALS

THE WAGNER-MURRAY-DINGELL BILL
(S. 1050 of 1945)

The Journal of the American Medical Association printed the following editorial concerning the bill recently introduced by Senator Wagner:

"On May 24 Senator Wagner introduced into the Senate of the United States the bill about which there have been so many conjectures and preliminary announcements during the last few months. The text contains 195 pages. The measure was referred to the Senate Committee on Finance, of which Senator George of Georgia is chairman. The measure was introduced into the House of Representatives by Representative Dingell of Michigan and is there known as H. R. 3293. In the House it was referred to the House Committee on Ways and Means, of which Representative Doughton of North Carolina is chairman. These are the committees to which the previous version was referred.

"Elsewhere in this issue appears the first of a series of analyses of this measure, prepared by the Bureau of Legal Medicine and Legislation of the American Medical Association. The present analysis is confined to the section of the bill that proposes a system of compulsory sickness insurance. In subsequent issues of *The Journal* attention will be paid to some of the other phases of social security covered by the proposed act. These include grants and loans for construction of health facilities, grants to states for public health services and for maternal and child health and welfare services, also a comprehensive public assistance program and a national system of public employment offices.

"The Wagner-Murray-Dingell measure—1945 version—would take over the proposals of the Hill-Burton bill for hospital and health center construction and make of it a ten year program at ten times the cost. This is long term planning with a vengeance, in view of the experimental character of the proposal, at best. Instead of the advisory board with authority proposed by the Hill-Burton measure, the 1945 Wagner-Murray-Dingell bill would substitute a National Advisory Hospital Construction Council, appointed by the Surgeon General and without authority, except to review applications and make recommendations. The new Wagner-Murray-Dingell bill also proposes to extend the grants for venereal disease and for the tuberculosis program. The section on public health service would change the present authorization of $20,000,000 a year for grants to the states with an authorization to appropriate a sum sufficient to carry out the purposes. The annual amount available to the Surgeon General of the Public Health Service for demonstrations, training of personnel and administrative expenses is increased from $3,000,000 to $5,000,000 a year. A formula is established designed to give more aid to the poor states and relatively less to the richer states.

"Another section of the 1945 version relates to federal cooperation with the states in providing health and welfare services for mothers and children. The states are to develop their own plans, which are to be approved by the chief of the Children's Bureau. Here also a formula is established for aiding the poorer states to a greater extent than the larger ones.

"Section 6 of the measure is devoted to the public assistance program, authorizing federal matching for money payments to the aged, dependent children, the blind and other needy individuals. The seventh and eighth section provide for an expanded and strengthened national system of public employment offices. Under this section a National Advisory Employment Policy Council is set up to formulate policies and to advise in the administration of the service.

"The section of greatest interest to the medical profession at this time is section 9, which would establish a national sickness insurance system. The proponents of the measure minimize its compulsory aspect in every way they possibly can. Nowhere is the word 'compulsory' used. In both the abstract of the measure and in Senator Wagner's presentation all the emphasis is placed on the benefits which presumably every one in the United States would receive from this measure; Senator Wagner reaffirms that complete freedom is offered to every one with regard to such medical services as he may give or receive. Indeed, Senator Wagner went so far as to say that 'health insurance is not socialized medicine; it is not state medicine.' With this pronouncement most people with any understanding of the situation will differ. They will insist that compulsory sickness insurance with federal control is both socialized medicine and state medicine. Health insurance, or actually sickness insurance, is a method of paying medical costs in advance and of distributing such costs. There are differences between various forms of sickness insurance. Senator Wagner emphasizes freedom of medical practice, which he says is carefully safeguarded because each insured person is entitled to choose his own doctor. But he must choose his own doctor among the physicians or groups of physicians in the community who agree to go into the insurance system. Certainly the insured person cannot secure the application of any of the funds that he has paid for the payment of a physician who is outside the system. The statement is made that 'the participating doctors are likewise free to choose the method through which they are to be paid from the insurance fund.' As a rule, they must choose as a group either a fee-for-service plan with a fee table, a capitulation fee or a salary. In the summary of the bill released by Senator Wagner the statement is made that 'the Surgeon General of the U. S. Public Health Service—a doctor—would administer the technical and professional aspects of the program.' This version of the Wagner-Murray-Dingell bill places tremendous authority in the hands of the Surgeon General, as was placed by previous versions. This time there is to be a National Advisory Medical Policy Council, to be appointed from panels of names submitted by professional and other organizations concerned with medical services, education and hospitals and to include also a representative of the public. This council is wholly advisory and without authority. Incidentally, there is nothing in previous law that says the Surgeon General of the U. S. Public Health Service must be a physician. The President can appoint the Surgeon General by selecting any of the members of the regular corps, which includes physicians, sanitarians, economists, doctors of public health and a wide variety of other personnel in the field of medicine.

"Among the first of the editorial comments to appear relative to the program for expanded social security was that of the New York *Times*, published on May 26. The *Times* says that certain questions are to be asked

of any proposal like the Wagner-Murray-Dingell bill, namely, 'Will it provide relief where it is needed without producing it where it is not needed? Will it mitigate the penalties for failure or misfortune without weakening the incentives to production and success? Will it provide aid to individuals without making them politically dependent and without dangerously extending the power of the central government?' To these questions the *Times* replies that under the bill as it stands it is more than doubtful whether these questions can be answered satisfactorily. The *Times* points out that vast new programs would be undertaken under the new bill, and existing programs would be tremendously liberalized. The unemployment benefits place a premium on not working. The old age benefits in some instances would pay a man more for retiring than for continuing at his job. The differential treatment would make the states competitors for especially favorable formulas. The total costs of the bill, involving an 8 per cent tax on the payroll, would be a direct tax on employment and would tend to discourage employment at a time when it is our chief problem. Moreover, the *Times* feels that the sponsors have greatly underestimated the actual cost of their measure.

"Physicians should obtain copies of this proposed act and study carefully all of its provisions, so that they may see for themselves the extent to which this act would revolutionize medical care in the United States. Senator Wagner points out that he has consulted this time with the American Federation of Labor, the Congress of Industrial Organizations, the Physicians Forum, the Committee of Physicians for the Improvement of Medical Care and the National Lawyers Guild, among other organizations, in obtaining suggestions for modification of his previous version. He has not consulted with the American Medical Association or, as far as is known, with any of the members of its representative bodies or councils. The so-called Physicians Forum is a group of several hundred physicians, mostly inclined toward communism and practically all living in New York City. The Committee of Physicians for the Improvement of Medical Care, once known as the Committee of 400, now maintains a mailing list of around 1,000 physicians and is actually controlled by an inner group of a few physicians who do not in any way represent a majority of medical opinion. Thus the bill completely disregards the majority opinion of the 125,000 physicians who constitute the American Medical Association and who provide the major portion of medical practice for the people of the United States. The bill also disregards the 60,000 physicians now in the armed forces who have sacrificed as much as any other group in the country in the great war in which our nation is now engaged. This obstinacy is typical of the manner in which Senators Wagner and Murray and Representative Dingell have from the first endeavored to impose their notions regarding the care of the public health and of the sick on the people of the United States."

On page 437 appears a letter sent to editors of medical journals and the comment from *The Journal of the American Medical Association* concerning the letter.

NEWS NOTES

Dr. E. V. Mastin, St. Louis, elected vice president of the Southern Medical Association at the last annual meeting, became president of the Association upon the recent death of Dr. Edgar G. Ballenger, Atlanta.

Dr. Richard G. Helman, Kansas City, was elected president of the Kansas City Obstetrical and Gynecological Society at a meeting on May 31. Other officers elected were Dr. Russell D. Etzenhouser, vice president; Dr. John O. Kennedy, secretary-treasurer, and Drs. Drury R. Thorn and Joseph G. Webster, members of the executive committee.

Dr. E. W. Cline, formerly in Platte City, has taken over his duties as city-county health officer of Joplin and Jasper County.

Dr. E. J. Curran, Kansas City, has retired as head of the department of ophthalmology at the University of Kansas School of Medicine.

Dr. William E. Angell, Rocheport, celebrated his fiftieth anniversary in the practice of medicine on April 3.

Dr. M. L. Diekroeger, Boonville, recently was reappointed county physician of Cooper County.

Dr. George A. Mellies, St. Louis, was guest of honor at a surprise dinner to celebrate his fiftieth anniversary in the practice of medicine at Norwood Hills Country Club on May 31. The dinner was given by the staff of Christian Hospital. An engraved wrist watch was presented to Dr. Mellies by the medical staff of the hospital, of which Dr. Mellies is president.

A committee including Dr. Evarts Graham, St. Louis, on May 31 called on the President of the United States in order to present to him a memorandum dealing with the supply of premedical and medical students, and physicians. Attention was called to the increased need of physicians by the civilian population, the Veterans Administration and the armed forces in the years to come. Within the next year the number of admissions of freshmen to medical schools will be reduced by about 5,000 because of the existing policies, and a corresponding reduction in the available physicians will follow. A complete memorandum is being forwarded directly to the President at his request in order to place all the facts before him.

Col. Curtis H. Lohr, St. Louis, has been appointed superintendent of St. Louis County Hospital and Health Center and Medical Director of the Hospital. Col. Lohr held the joint position before he entered the Army two years ago. He was honorably discharged on June 6. During his service with the Army Col. Lohr was in command of the Seventieth General Hospital located first in North Africa and later in Italy.

Dr. Herbert J. Rinkel, Kansas City, was the guest speaker at a meeting of the Shawnee County (Kansas) Medical Society at Topeka, Kansas, on June 4.

Drs. Ira H. Lockwood and Vincent T. Williams, Kansas City, were guest speakers at the A. A. F. Regional Hospital, Smoky Army Air Field, Salina, Kansas, on June 14. Dr. Lockwood spoke on "X-Ray Findings in Abdominal Pathology" and Dr. Williams spoke on "Shock and Burns."

MISSOURI DOCTORS IN SERVICE

Major Allen I. Herman, Springfield, has been promoted to a Lieutenant Colonel.

★ ★

Major Josef Shelton Cope, Lexington, has been promoted to a Lieutenant Colonel.

★ ★

Commander Marvin L. Bills, Kansas City, has returned to Kansas City after twenty-seven months in the South Pacific. He is assigned to the Naval Recruiting Station in Kansas City with additional duties at Fort Leavenworth.

Colonel Durward G. Hall, Springfield, Chief Personnel Service in the Surgeon General's Office, gave the commencement address at the recent graduation exercises at Drury College, Springfield.

★ ★

Lt. Col. Stanley L. Harrison, St. Louis, chief surgeon of the Persian Gulf Command, has been promoted to Colonel.

★ ★

A commendation from Brig. Gen. J. I. Martin, Fifth Army Surgeon, received recently by Col. Curtis H. Lohr, St. Louis, formerly in command of the Seventieth General Hospital in Italy, read: "Your hospital offered superior service to the Fifth Army during this critical period. The display of technical skill and devotion to duty of personnel under your command upheld the highest traditions of the medical department of the United States Army."

★ ★

Lt. Col. Edward H. Hashinger, Kansas City, has been promoted to a Colonel.

DEATHS

Colson, John R., M.D., Schell City, a graduate of the University Medical College of Kansas City, 1890; honor member of the Vernon-Cedar County Medical Society; aged 81; died April 14.

Heiple, Edward E., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1914; honor member of St. Louis Medical Society; aged 56; died May 4.

Rising, Dean Stelle, M.D., Kansas City, a graduate of the University Medical College of Kansas City, 1910; Fellow of the American Medical Association; member of the Jackson County Medical Society; aged 62; died May 12.

Mella, Sherwin E., M.D., Kansas City, a graduate of the University of Kansas School of Medicine, 1919; Fellow of the American Medical Association; member of the Jackson County Medical Society; aged 50; died May 18.

Vogt., William H., M.D., St. Louis, a graduate of Missouri Medical College, 1897; Fellow of the American Medical Association; member of the American Board of Obstetrics and Gynecology; head of the department of obstetrics and gynecology, St. Louis University School of Medicine; former president and councilor of St. Louis Medical Society; aged 68; died June 17.

MISCELLANY

HOSPITALS NOW—AND TOMORROW

The Commission on Hospital Care, on which Missouri is represented by Dr. Evarts A. Graham, St. Louis, is engaged in a two year inventory of the nation's hospitals. The following article by Dr. A. C. Bachmeyer, Director of Study of the Commission, explains the origin, method of study and the ultimate goal of the Commission. The article follows:

Lack of incentive for young doctors to begin practice in rural and semirural areas is one of the big problems which both the public and the medical groups are facing today. Large hospitals, medical centers and city practices attract many young physicians because of the well equipped laboratories, skilled technicians and opportunity for continued study.

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The nation's postwar planning on local, state and national levels is working toward construction of hospitals to serve those neglected areas. But before any real planning can be done it is first necessary to know exactly what hospital facilities and services are available at the present time. So last fall the Commission on Hospital Care was established through the efforts of the American Hospital Association and was given the job of taking the vital inventory of the nation's hospital facilities. The Commission on Hospital Care is located at 22 East Division Street, Chicago 10, Illinois.

It is an impartial, fact-finding body and its members are outstanding men and women of national repute who have a sincere interest in public welfare. They include members of the medical, dental and nursing professions; hospital trustees and administrators; public health; medical education; industry; labor; agriculture; public welfare and the fields of sociology and economics. The work is financed by grants from the Commonwealth Fund, the W. K. Kellogg Foundation and the National Foundation for Infantile Paralysis.

The objectives of the Commission on Hospital Care are to take a census of the present hospital and public health facilities in the nation; appraise their capacity for service; establish standards for evaluating physical facilities, organization and management of hospitals; determine the over-all national need for additional facilities and service; formulate a national coordinated hospital plan and to suggest methods by which that plan can be realized.

National interest in the survey is widespread. Thirty-five states are in one phase or another of their studies. Surveys are in process or about to start in: Iowa, Massachusetts, Michigan, Minnesota, Missouri, North Dakota, New Hampshire and Wisconsin. Survey legislation has been enacted but surveys are not yet started in: Delaware, Indiana, Maine, North Carolina, New Mexico, Oklahoma, Oregon, Rhode Island, Virginia, Vermont and Washington. Survey legislation is pending in: California, Florida and South Carolina. Survey organizing committees have been established in: Illinois, Kansas, Kentucky, Louisiana, Montana, Nebraska, Ohio, Pennsylvania, Tennessee, Texas and West Virginia. States which are proposing that the Postwar Planning Commission conduct the survey are: Alabama and New Jersey. States which have made preliminary hospital studies are: Georgia, Maryland and Utah.

The commission is conducting a pilot-study in Michigan. The inventory of Michigan's 700 hospitals, including nursing homes and other institutions for the care of the sick is now nearly completed. The method used in Michigan will serve as a pattern which other states may use in making their surveys if they so desire.

A detailed study of every hospital in the entire country would take more time and money than the Commission has at its disposal. Therefore, each state is being urged to carry on its own study. In this manner, local interest in the problem will be aroused. Each state will become immediately aware of its needs and a desire to furnish adequate hospital service will be stimulated. It is suggested that the surveys be conducted by a single designated state agency in close cooperation with the state planning commission and the health department. Representatives of medical, dental and nursing professions, hospital administrators, labor, industry, agriculture, public health and welfare should be represented on each state study committee.

Although each state carries on its own study, the Commission on Hospital Care will act as a coordinating body and furnish a standard questionnaire for use by all states making the survey. Other work materials, as



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well as the aid of technical consultants, will be provided by the Commission. The final job of tabulating the information will be done by the Commission staff in the national office.

The hospital and the private physician are a team against sickness and disease. For a long time physicians and hospitals have worked together—and fought together—to preserve life and health. The technological advances of medicine have made that teamwork more vital and more effective than ever before.

Now that the health spotlight has swung to the hospital, we are becoming increasingly aware that there are not enough hospitals to serve everyone who needs hospital care.

But the spotlight has also swung to planning. Before we build, we have to plan so that every area—rich or poor—will have its share of the vital hospital facilities.

That is why the Commission on Hospital Care is directing this county-by-county survey of the nation's hospitals. In this way we can put a magnifying glass to the hospital problem in each area, yet retain a picture of the overall needs of the county, the state and the nation.

It is part of the Commission's undertaking to solve the problem of uneven distribution of hospitals and physicians. We know that doctors are not attracted to areas where there are no facilities. So we must be certain that the postwar hospitals are built in the right places. Each community cannot just "up and build a hospital" but must fit itself into the plans of its neighbors.

For all of these reasons, a survey to determine need is vital. The Commission on Hospital Care urges all members of the medical profession and all other public-spirited citizens to give their utmost cooperation to this inventory in order that our nation's hospitals may be built where they are needed and where they can be operated to the best advantage of all of the people.

THE WAGNER-MURRAY BILL

Concerning a letter written by Senator Wagner to editors of medical journals, *The Journal of the American Medical Association* says the following: "Under correspondence in this issue appears a letter sent by Senator Robert F. Wagner of New York to the Editor of THE JOURNAL. In the letter Senator Wagner states unequivocally that he is opposed to state medicine or socialized medicine. He does not, however, state his definitions of state medicine and of socialized medicine. Regardless of these definitions, physicians will need to be convinced that a compulsory sickness insurance system centralized in Washington, with payments of all funds for medical and hospital care by a central agency, is neither state medicine nor socialized medicine."

The letter from Senator Wagner follows:

To the Editor: On Thursday, May 24, I introduced with Senator Murray a bill, S. 1050, entitled: "The Social Security Amendments of 1945." The bill provides for "The national security, health and public welfare." Representative Dingell of Michigan introduced a companion bill (H.R. 3293) in the House at the same time.

I am forwarding the bill itself, and a copy of my speech in the Senate for your information and use.

I particularly invite your earnest study of the provisions of the bill relating to health. There is absolutely no intention on the part of the authors to "socialize" medicine, nor does the bill do so. We are opposed to socialized medicine or to state medicine. The health provisions of the bill are intended to provide a method of paying medical costs in advance and in small convenient amounts.

During the formulation of this bill, we have bene-

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fited greatly from the constructive advice and suggestions of practicing physicians, and of physicians in clinical and teaching positions. Their constructive suggestions have resulted in changes in the bill which we presented in the last Congress. Undoubtedly other changes will be made before this bill is enacted into law. We wish to have it known that we invite constructive suggestions from the medical profession.

In addition, members of the medical profession will be given full opportunity to voice their opinions in open hearings when the bill is considered in Committee.

I hope that you will print this letter in your Journal and that you will join me in urging the medical profession to undertake an earnest study of the actual provisions of the bill. In this way you can help immeasurably in avoiding misunderstanding and misinterpretation of the legislation and in stimulating physicians and medical and hospital organizations to come forward with constructive suggestions and advice.

Very sincerely yours,

Robert F. Wagner.

HEALTH OF THE ARMY

Acting Secretary of War, Honorable Robert P. Patterson, and Major General Norman T. Kirk, Surgeon General of the Army, reported on the health of the Army at a press and radio conference on May 24. Secretary Patterson said in part the following:

The war in which we are engaged has produced many seemingly unsurmountable problems, problems without precedent in the development of new weapons, new methods of training and new tactics. But none of these problems has been more difficult than the problems faced by our Medical Department in caring for the largest American Army in history, fighting in virtually all parts of the world. And yet, despite these problems, no Army at any time in history has achieved a record of recovery from wounds and freedom from disease comparable to that of the American Army in this war.

The Medical Department, its doctors, its nurses, its corpsmen, has saved the lives of 97 out of every 100 men wounded in battle who reach a hospital, compared with 92 in the World War. Seventy out of every 100 wounded overseas were returned to duty, and 27 were evacuated to this country.

During the last three years, the Medical Department has maintained a record of less than one death from disease per 1,000 men per year. During the World War, 19 out of every 1,000 men died each year from disease. During the Spanish-American War we lost 26 out of every 1,000 per year, and in the Civil War, 65 out of every 1,000 men died each year from disease.

In all, during this war, 12,000 men died from disease from December 7, 1941, to May 1, 1945. In World War I, 62,670 men died from disease; in the Spanish-American War, 3,500 died from disease, and in the Civil War, 336,216 men of the Union and Confederate armies died from disease.

Malaria has been reduced from hundreds of cases per 1,000 men per year to less than 50. The dysenteries, which once put entire regiments and armies out of action, have occurred among less than 90 out of every 1,000 men per year and have been readily controlled. During World War I, 38 per cent of the men who contracted meningitis died, compared with 4 per cent in the present war, and 24 per cent of those who caught pneumonia died in 1918 compared with only seven tenths of one per cent in this war.

No greater tribute can be paid to the Medical Department of our Army than the tribute paid by its record of saving lives in this war.

It is a record written by Medical Corpsmen following the troops into battle; by doctors performing their surgery amid the bursting of bombs; by the self-sacrifice of American women in the Nurse Corps, laboring long hours under the most difficult of conditions, by thousands of other Medical Department personnel, and by scientific research and development.

The Medical Department today is well prepared for the intensification of its work brought about by the cessation of hostilities in Europe. Thousands of wounded veterans in the European and Mediterranean theaters are being transported to the United States as fast as ships and planes are available. Physical examinations are being given to each of the 3,500,000 soldiers in those theaters before they are redeployed. And Medical Department personnel will be sent to the Pacific in ever increasing numbers as our forces are marshalled for the final blows against Japan.

The peak of the Medical Department's activities will not be reached until the fall of 1945. At present, wounded and sick are being returned to this country from all theaters at the rate of 44,000 a month. This evacuation will continue until all of the patients in the European and Mediterranean theaters are removed, which will require 90 days.

In anticipation of this movement of patients from Europe to this country, the Army has provided seven additional hospital ships, three of which are now in service with four more to be commissioned shortly. This will bring the total number of hospital ships to 29, with an aggregate patient capacity of 20,000. Of the 25 Army hospital ships now in operation, 18 are in the Atlantic, 5 are in the Pacific, and 3 more are en route to the Pacific.

In addition to these hospital ships, special hospital equipment has been placed aboard 24 troop transports, giving the Army an additional patient carrying capacity of 40,000.

Eight thousand patients a month are being brought back to the United States by plane, with three fourths of this air traffic over the Atlantic.

The arrival of these thousands of wounded and sick in this country during the next three months will place a heavy load on our general and convalescent hospitals. The population of all Army hospitals in the United States at present is 290,000. By September, this is expected to reach 315,000 taking into consideration the discharge rate.

It can readily be seen that the Medical Department will be operating at capacity for many months to come and there will be a critical need for its professional and civilian personnel during this period.

General Kirk's statement was as follows:

The Army Medical Department is well prepared to maintain its record of saving lives and guarding against disease in the second phase of World War II which will be centered in the Pacific. As combat activities increase in that area troops moved from European theaters will find a different type of warfare, different diseases and different methods of combating disease.

The Medical Department has been preparing for years for its fight on disease in the Pacific. In addition to its intensive research into diseases common to that area it has gained much value in practical application of its methods from the campaigns already fought.

In the Pacific areas our fighting men are exposed to many types of disease that are rare in the United States and Europe. However, this should not be considered cause for alarm. With proper preventive measures and medical service the disease rate in the Pacific will be kept to a minimum.

Every fighting unit in the Pacific area has had the same type of medical organization accompanying it as those in other theaters. The chain of evacuation of the wounded is well organized and is very effective. Because of geographical and climatic differences certain changes were desirable, but the same high type facilities are available.

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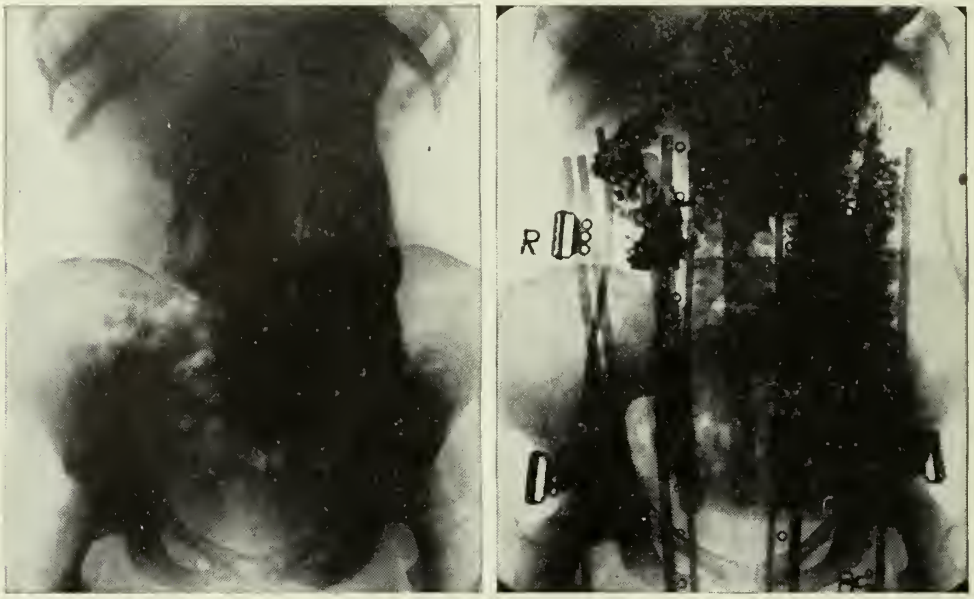
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The main diseases to be encountered in the Pacific are malaria, the dysenteries, scrub typhus, skin infections, schistosomiasis, filariasis and dengue fever. Excellent progress has already been made in keeping the incidence of all of these diseases to a very low degree.

Malaria, for example, has been reduced to one fourth its incidence in the early part of the war so that the over-all death rate from malaria in the Army is .01 per cent.

The use of D.D.T. and atabrine is primarily responsible for lowering the incidence rate of the most disabling tropical diseases. The remarkable record in lowering the malaria rate is due also to strict discipline and control measures. Malaria is spread by the anopheles mosquito. D.D.T., a recently developed insecticide, is used to kill this mosquito and the larva. Areas are sprayed with D.D.T. by plane and a 5 per cent solution of D.D.T. sprayed on barracks walls in kitchens and huts kills all mosquitoes and flies alighting thereon for months after spraying.

The dysenteries, so common in the Pacific areas, which are spread by flies are also rendered less prevalent by the use of D.D.T.

Atabrine has been found more effective as a therapeutic agent in the control of malaria than quinine.

Filariasis, which is also spread by the mosquito, is reduced by the use of D.D.T. and mosquito control methods.

Schistosomiasis is caused by a small fluke found in pools and running streams which in a matter of seconds burrows through the skin and infects the individual. All water found to contain these flukes is posted and personnel is warned not to bathe, wade or wash in it.

Areas found to contain scrub typhus are immediately burned over, clothing is impregnated and efforts are being made to develop a vaccine to counteract it.

Dengue fever, also spread by the mosquito, is controlled by the use of D.D.T. and mosquito abatement.

It can readily be noted that D.D.T. is one of the miracle developments of this war.

Last year a tropical disease center was opened by the Army Medical Department at Moore General Hospital, Swannanoa, North Carolina. It was designated as a center for the study and treatment of tropical diseases. This center has assisted greatly in the investigation and treatment of these diseases and has reduced the loss of manpower as a result of illness, thereby making an important contribution to the continuing improvement of American medicine.

In addition to protecting the soldier from diseases of the tropics the Army Medical Department is affording all possible protection against disease and harmful pests which might be brought into the United States by military traffic. This is done through a quarantine branch which works in conjunction with the U. S. Public Health Service and the Navy.

The Army program includes measures to prevent the importation of dangerous insects from abroad. Extensive insect control programs have been carried out about military stations and airports abroad, using highly effective technics and agents. Passengers, planes, ships and cargo are sprayed with insecticides in order to eliminate insect risk.

The battle is also waged through the control of rats and vermin. The most effective means of ridding ships of rats has been to build ships in such a way that rats cannot live or breed aboard them. Modern American ships are practically free of this age-old problem.

To protect the country against agricultural diseases and pests which might be imported, rigid restrictions and inspections are made fully effective for military traffic. Particular stress is laid upon packing materials which might harbor insect forms.



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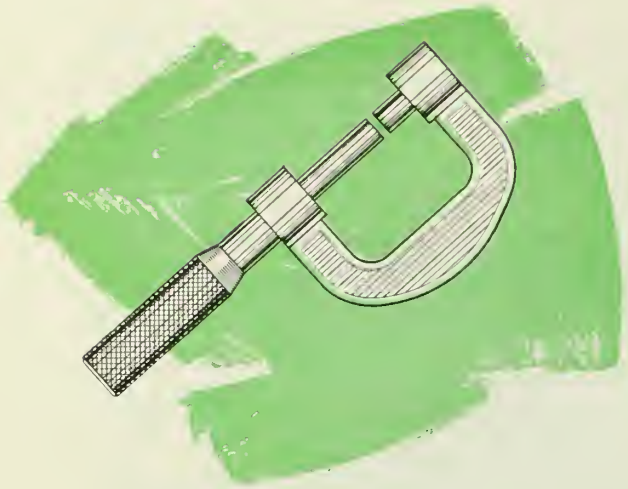
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But a precision instrument, no matter what its design, is only so reliable as the toolmaker who produces it. *Likewise liver extract.*

Purified Solution of Liver, Smith-Dorsey, will give you uniform purity and poteney for the treatment of pernicious anemia. It is manufactured under conditions which meet strict professional requirements. Laboratories are capably staffed; facilities are modern; production is carefully standardized.

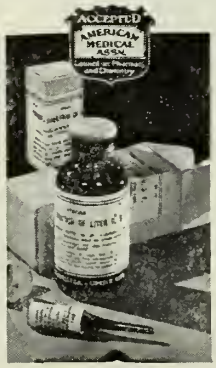
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The Army Medical Department has complete medical and sanitary surveys of all the territory in the Pacific which is potential battle ground. The health hazards to soldiers are known to the Medical Corps officers who accompany all invasion troops and that knowledge is distributed to all the men.

The Army Medical Department has been doing a fine job in the Pacific and will continue to do that job as activities in that theater increase. It is true that the pestilential islands of the Pacific have not been changed into gardens of Eden, but when the deplorable health conditions that existed there are compared with what has been accomplished it is obvious that our victory over the Japs will be hastened.

While all of this work and planning was going on for the increased activity in the Pacific the Army Medical Department during 1944 took care of 4,435,000 patients in hospitals—2,315,000 in the United States and 2,120,000 in hospitals overseas. In addition it provided care for an additional 43,210,000 nonhospitalized patients—those with minor infections and injuries who were only temporarily incapacitated.

It performed the essential functions of caring for men wounded in battle, the injured and the sick to maintain fighting strength with 45,000 medical corps, 15,000 dentists, 52,000 nurses, 2,000 veterinarians, 18,700 medical administrative corps men, 2,500 sanitary corps specialists, 1,000 physical therapists, 1,500 dietitians, 61 pharmacy corps officers, 535,000 enlisted medical aid men and approximately 80,000 civilian employees.

Illness and recuperation of wounded and injured men does not cease with a formal declaration of the end of hostilities on any front. The care of these men and women is a continuing responsibility of the Medical Department which will go on for many months in the future. It will increase rather than diminish during the remainder of 1945, according to the best estimates which can be made now. Therefore, as I have said before, medical care by the Army has yet to hit its full stride. One thing I wish to promise is that the best scientific medical attention will continue to be furnished to every man needing it.

BOOK REVIEWS

A Textbook of Pathology. Pathologic Anatomy in Its Relation to the Causes, Pathogenesis, and Clinical Manisfestations of Disease. By Robert Allan Moore. Edward Mallinckrodt Professor of Pathology, Washington University School of Medicine, St. Louis. 513 Illustrations, 34 in Colors. Philadelphia: W. B. Saunders Company. 1944. Price $10.00

Looking back for some fifty years one finds that there have been published in America many excellent texts on pathology. At the beginning of the century most of these texts were based on the German writers who were students or followers of the great Virdow. Dr. Moore pays tribute to these earlier American pathologists, of whom William Henry Welch will always be considered the father, in the first chapter of his book. And no better opening could there be than his brief review of the history of pathology.

While admitting the excellence of these early works one must also admit a great similarity in the treatment of the subject. It made little difference whether the teacher of pathology used Warthin's, Zeigler or Steigel or Delafield and Prudden or one of the several others. The professor had his Kaufmann, the pathologist's Bible, that he had brought back from Germany with which to supplement his teaching.

It was not until 1916 that W. G. MacCallum broke away from the old texts and approved the subject from the viewpoint of causes and the reaction to injury of the cells and tissues of the human body. His work is now in the seventh edition and since that edition is now nearly five years old, the time is ripe for a new book,

for much has happened in the field of pathology in the last five years.

Dr. Moore has produced that new, completely up-to-date book, and he has made new departures through his approach by disturbances of metabolism, by his emphasis on the physiologic and chemical aspects of general pathology and by his clinicopathologic correlations. Practically every new aspect of disease has been brought up to date. This is especially true of tropical diseases and the new infective agencies. Although his book runs into 1300 pages, one of its greatest virtures is its condensation.

References to literature are given if one wishes to pursue any given subject. The book is well printed and especially well illustrated. It can well be considered the best textbook of pathology that exists today. R. L. T.

TEXTBOOK OF GENERAL SURGERY. By Warren H. Cole, M.D., F.A.C.S., Professor and Head of the Department of Surgery, University of Illinois College of Medicine; Director of Surgical Service, Illinois Research and Educational Hospitals, Chicago; and Robert Elman, M.D., Associate Professor of Clinical Surgery, Washington University School of Medicine; Assistant Surgeon, Barnes Hospital; Associate Surgeon, St. Louis Children's Hospital; Director of Surgical Service, H. G. Phillips Hospital, St. Louis. Fourth Edidion. New York: D. Appleton-Century Co. 1944. Price $10.00.

It is indeed a commendable accomplishment to present adequately the subject of "General Surgery" in one volume of 1,071 pages. This is precisely what the authors have done in the fourth edition of their work.

Perhaps a better title would have been "A Guide to General Surgery." The book abounds in subject matter and topics, the details of which would require voluminous space and would therefore have to assume the character of a reference work. This obstacle the authors have overcome by condensing an amazing of information into brief chapters, thirty-three in all, touching succinctly on innumerable surgical subjects, at the same time presenting most important clinical as well as pathologic considerations, prefusely illustrated by means of excellent photographs, sketches and diagrams, 559 figures all strikingly instructive.

The authors display marked ability as teachers by the manner in which the subject matter is presented throughout the book. Furthermore, they enhance the quality of book's contents by including contributions from the experience and research of eighteen outstanding American surgeons who are experts in their various fields.

A valuable feature of the book is the extensive and carefully chosen bibliography at the conclusion of each chapter.

To stamp the work as entirely up to date, a chapter on "War and Catastrophe Surgery" concludes the volume.

This textbook merits a place along side the best works in this field today, not only as an authoritative presentation of the facts about general surgery but as a reference book and guide to more elaborate collateral reading.

As Dr. Evarts A. Graham says in his "Foreword": "The book should be found to be very helpful, not only to undergraduate students, but also to general practitioners who desire to obtain in a concise manner information about many of the advances which have been made in surgery. Even the experienced surgeon will find the book helpful for the same reason. M. G.

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• Pictured at left — Most comfortable homes for individuals requiring rest, scientific diagnosis and treatment. Fireproof construction.

Pregnancy Needed Weight-Gain, and Proteins

One of the tasks imposed upon the gravid organism is to produce new tissue to the extent of almost one-fifth of its own normal body weight.* Unless protein supply in the diet is adequate, quantitatively as well as biologically, the hazard for the maternal organism increases and the development of the fetus may be impaired. The proteins of meat are of the right kind not only to lay down these new tissues, but also to provide for the stepped-up functions during pregnancy, for which proteins are essential.

* "During pregnancy the average normal woman gains approximately 18-22 pounds, which represents the growth of the uterus, breasts and other organs as well as the fetus and placenta. In other words, a pregnant woman in nine months reproduces tissue almost equivalent to one-fifth of her own normal body weight. It must not be forgotten that the chief function of protein is to supply the tissue-building material of the body, that the need for this material is increased during pregnancy and that the protein deficiency in the diet of the nonpregnant woman may become dangerous when maternity intervenes. . . . It is reasonable to assume that protein foods satisfy appetite earlier than the others and make it content with fewer calories. In this respect we have found high protein diets of value for weight restriction during pregnancy." (Arnell, R. E.; Guerriero, W. F.; Goldman, D. W.; Huckeby, E., and Lutz, A. M.: PROTEIN MALNUTRITION IN PREGNANCY, New Orleans M. & S. J. 95:114 [Sept.] 1942).

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COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1945

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

Perry County Medical Society, December 1, 1944.

Moniteau County Medical Society, December 19, 1944.

Camden County Medical Society, December 19, 1944.

Ste. Genevieve County Medical Society, December 22, 1944.

Dallas-Hickory-Polk County Medical Society, December 23, 1944.

Pulaski County Medical Society, January 2, 1945.

Scott County Medical Society, January 2, 1945.

Chariton County Medical Society, January 2, 1945.

Audrain County Medical Society, January 3, 1945.

Holt County Medical Society, January 9, 1945.

Dent County Medical Society, January 13, 1945.

Macon County Medical Society, January 15, 1945.

Mercer County Medical Society, January 15, 1945.

Webster County Medical Society, January 22, 1945.

Harrison County Medical Society, February 9, 1945.

Lincoln County Medical Society, February 10, 1945.

Morgan County Medical Society, February 12, 1945.

Carroll County Medical Society, March 12, 1945.

Christian County Medical Society, March 14, 1945.

Saline County Medical Society, March 15, 1945.

Callaway County Medical Society, March 26, 1945.

Henry County Medical Society, April 13, 1945.

Pettis County Medical Society, April 23, 1945.

Cass County Medical Society, May 4, 1945.

Stoddard County Medical Society, May 7, 1945.

Bates County Medical Society, May 22, 1945.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Wright-Douglas County Medical Society

The Wright-Douglas County Medical Society held a dinner meeting at the Elliott Hotel, Mountain Grove, on May 25, with the following present: Drs. L. T. Van Noy, Norwood; J. R. Mott, Hartville; A. C. Ames, R. A. Ryan, R. W. Denney and H. G. Frame, Mountain Grove; J. A. Fuson, Mansfield; E. C. Bohrer, West Plains.

The evening was spent in informal discussion of pending legislation.

A resolution was passed unanimously approving the establishment of a four year medical course at the State University with the last two years at Kansas City and the secretary was instructed to publish this in the local papers and send copies to the senators and representatives in the Legislature.

A. C. AMES, M.D., Secretary.

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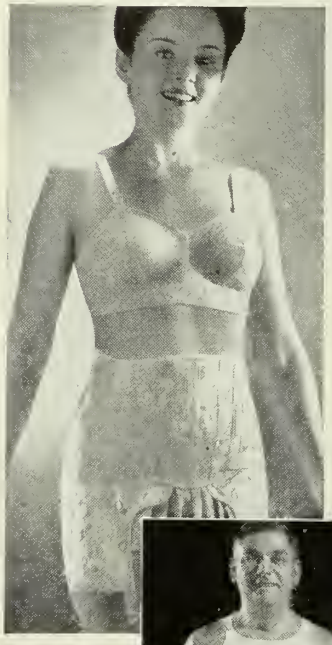
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At left:
Spencer Abdominal Supporting Belts designed especially for man and woman pictured. Non-elastic. Instantly adjusted. Can not yield or slip. The weight of support is placed on the pelvic girdle, not on spine at or above lumbar region.

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As a protection for the weakened abdominal wall, especially when patient is forced to return to work sooner than the doctor desires, a Spencer is helpful. Each Spencer is so designed as to permit exercise of abdominal muscles while providing adequate back and abdominal support.

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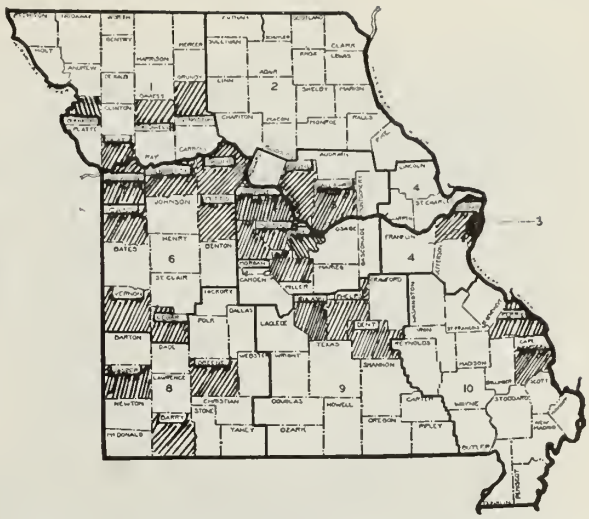
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Showing the twenty-two counties which are organized as shaded areas. There are 874 members. Why has not your county an organized Auxiliary?

PRESIDENT'S MESSAGE

Greetings to you all. How do you like our reinstated feature in THE JOURNAL? Thanks to the doctors for the space.

The Bulletin went to press before all the chairmen were contacted so being July, I thought we should start the year off with a "bang."

Please study the map of Missouri and see what you can do in using your influence to organize your next door neighbor county. If there are too few doctors in the county, try and get them to be members at large. They will be a nucleus for an organized auxiliary after the war.

Have you contacted the doctors' wives in the Base Hospital in your community? They would be glad for your friendship and interest.

On May 5 and 6 I had the honor of being a guest at the General Session of the Woman's Auxiliary to the Kansas Medical Society. It was a splendid meeting and I came away burning with enthusiasm and new ideas.

We plan to have a year book with roster of all county officers, chairmen and members. This will be a new talking point for the members at large. They, too, may have their names in the year book for their $1.00 membership.

I have just had a conference with Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association. He tells me that the American Medical Association has ninety-two recording records of health talks which are available, free of charge, for your meetings and public groups. He is anxious for these to be played on local radio stations. This would make a fine public relations meeting.

Dr. Bauer also suggests that each County Auxiliary make a survey of health education in schools with the cooperation of the school superintendent. If you write Dr. Bauer, he will send you the pamphlet on "Social Health Policies."

Remember an informed member is an interested member. I hope that you will plan now during the summer for your fall programs. Remember that cooperation and teamwork means success to our organization.

MRS. HARRY M. GILKEY, President.



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The greatest skill in any field is but outward evidence of the highest measure of *control.*

It follows naturally, therefore, that the modernly equipped U. D. laboratories should operate under one of the most stringent and efficient systems of quality control employed in the production of fine pharmaceuticals. Based on practical experience, and developed over a long period of years, this system is supervised by the competent Formula Control Committee of doctors, chemists and pharmacists. Notwithstanding all the earlier safety measures applied in the development process, every formula under the famous U. D. label is finally subjected to the professional scrutiny of this Committee and must meet this group's exacting standards.

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U. D. STARZIN . . . An essentially stainless cool tar ointment, highly effective in the treatment of eczema.

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BOOK REVIEWS

TREATMENT OF PEPTIC ULCER, THE. Based Upon Ten Years' Experience at the New York Hospital. By George J. Heuer, M.D., Professor of Surgery of Cornell University Medical College and Surgeon-in-Chief of the New York Hospital. Assisted By Cranston Holman, M.D., Assistant Professor of Clinical Surgery, Cornell University Medical College and William A. Cooper, M.D., Assistant Professor of Clinical Surgery, Cornell University Medical College. Philadelpha: J. B. Lippincott Company. Price $3.00

This clinical and statistical study was made primarily for the members of the Staff of the New York Hospital and Cornell University Medical College. It is a carefully prepared analysis of the results obtained during the first ten years of operation of the clinic.

In a ten year period 1204 patients with various types of ulcer were observed. Of these 732 were treated medically of whom 54.9 per cent had satisfactory results, 34.8 per cent had unsatisfactory results and 10.2 per cent were lost to follow-up observation.

The surgically treated cases are discussed according to the type of operation performed. In 201 cases of peptic ulcer treated primarily by gastroenterostomy the postoperative mortality was 4 per cent. In 170 cases of duodenal ulcer in which gastroenterostomy was performed, 73 per cent gave satisfactory results, 20.6 per cent unsatisfactory, 3.5 per cent died following operation and 3 per cent were lost to follow-up history. Their experience with gastroenterostomy for gastric ulcer included 31 patients. Of these 77.4 per cent gave satisfactory results, 16.2 per cent were unsatisfactory and 6.4 per cent died following operation. Of 142 cases of peptic ulcer treated primarily by gastic resection, 83 per cent gave satisfactory results, 7.7 per cent unsatisfactory, 2.1 per cent were lost to follow-up and 7.2 per cent died following operation. Other interesting statistics are given including the effects of gastroenterostomy and gastric resection on gastric secretion.

One gains the impression that important factors operative in the pathogenesis of peptic ulcer such as psychic factors, maladjustments and economic strain were not emphasized in those cases medically treated.

This contribution to the management of peptic ulcer will prove interesting to both surgeons and internists. R. V. P.

TECHNIQUE IN TRAUMA. Planned Timing in the Treatment of Wounds Including Burns. From The Montreal General Hospital and McGill University. By Fraser B. Gurd, M.D., C.M. and Douglas Ackman, M.D., C.M. In Collaboration With, John W. Gerrie, M.D., C.M.; Joseph E. Pritchard, M.D.; Edward S. Mills, M.D., C.M.; Frederick Smith, M.D. Preface by John S. Lockwood, M.D. University of Pennsylvania; With Commentary By Ralph R. Fritzgerald, M.D., C. M. McGill University. Philadelphia: J. B. Lippincott and Company. 1944. Price $200

This treatise explains the method of occlusive pressure dressings as used at the Montreal General Hospital and McGill University Hospital.

It has many colored illustrations and deals with the use of the sulfonamides.

For those interested in industrial and traumatic surgery it is a definite contribution. O. J. P.

CAUTION FOURTH OF JULY CELEBRANTS

"Every effort should be made to curb the use of fireworks on the Fourth of July in order to keep the inevitably attendant injuries at a minimum," says *The Journal of the American Medical Association* for June 23.

"For many years," *The Journal* adds, "annual summaries of the injuries from fireworks occurring throughout the nation in celebration of the Fourth of July were published in *The Journal*. These summaries were influential in bringing about legislation in many states which sharply reduced the frequency of these unnecessary accidents."



DOCTOR, MEET THE DARICRAFT BABY

Perhaps you are "meeting" the Daricraft Baby every day in your own practice. If not, may we call to your attention the following significant points of interest about Vitamin D increased Daricraft:



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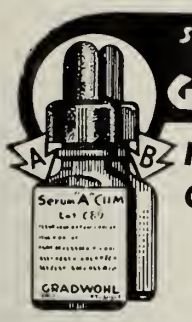


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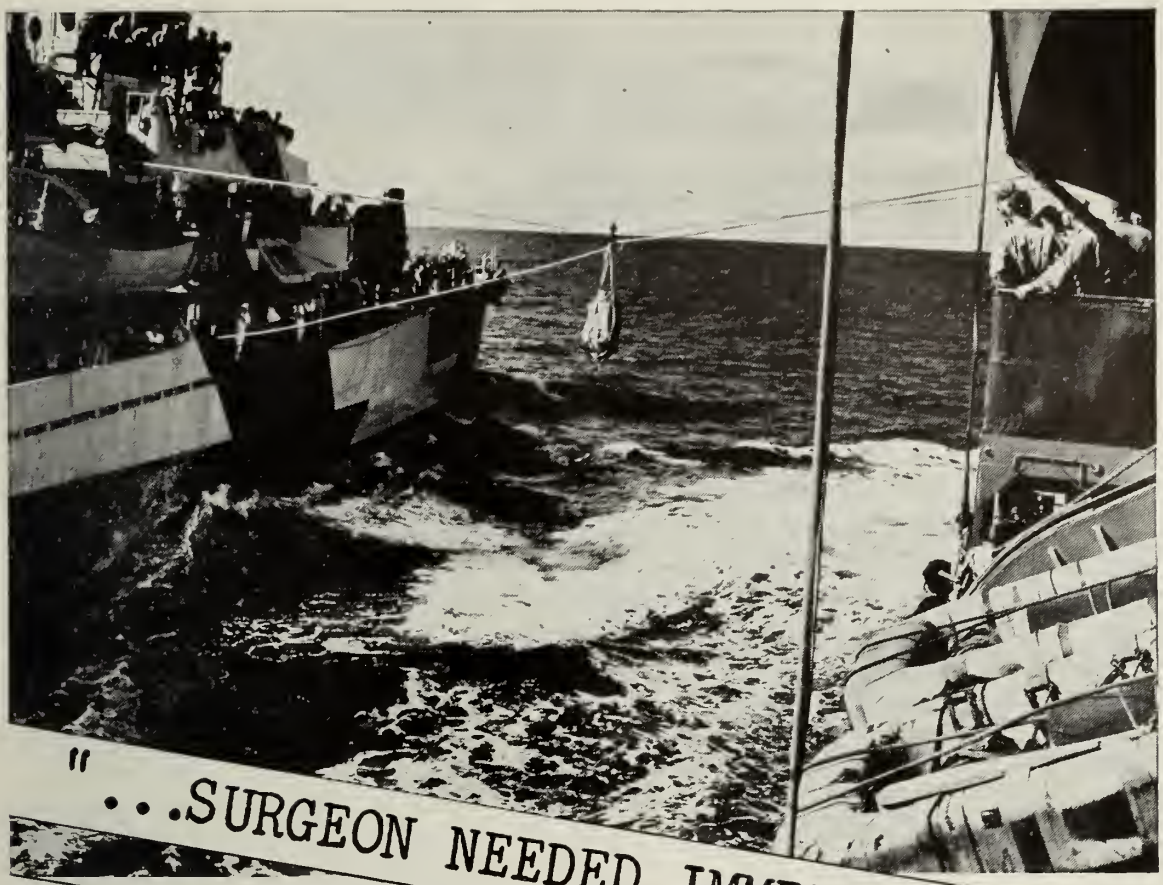
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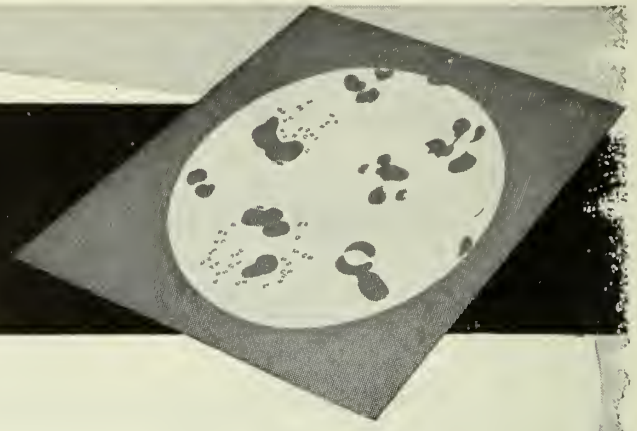
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Frisch, A. W.; Behr, B.; Edwards, R. B., and Edwards, M. W., Am. J. Syph., Gonor., & Ven. Dis. 28:527 (Sept.) 1944.

From a study of 109 patients, the conclusion is drawn that penicillin effectively eradicates chemoresistant gonorrhea in the female.

Greenblatt, R. B., and Street, A. R., J. A. M. A. 126:161 (Sept. 16) 1944.

At a U. S. Naval Hospital, 200 cases of sulfonamide-resistant gonorrhea treated with penicillin, showed no toxic reactions; all returned to duty in one-third of the time previously required.

Scarcello, N. S., New England J. Med. 231:609 (Nov. 2) 1944.

"In the Technical Bulletin of Medicine, No. 26, recently issued by the War Department, penicillin is stated to be the drug choice in the treatment of gonorrhea."

J. A. M. A. 126:575 (Oct. 28) 1944.

191 consecutive cases of sulfonamide-resistant gonorrhea responded dramatically to penicillin.

Wigh, R., and Geer, C. I. Jr., J. Maine M. A. 35:207 (Nov.) 1944.

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Barringer, E. D.; Strauss, H., and Horowitz, E. A., N. Y. State J. Med. 45:52 (Jan. 1) 1944.

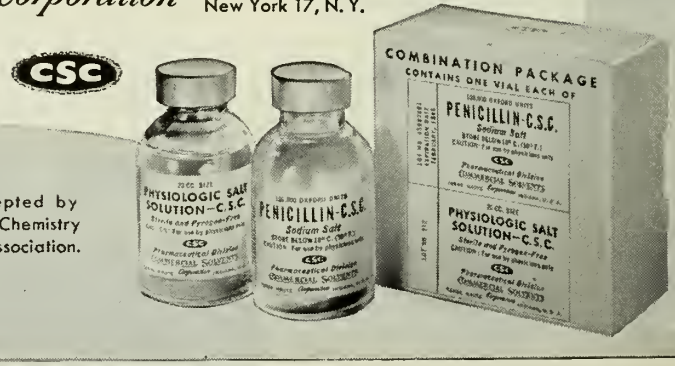
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DISEASES OF THE BILE DUCT

J. M. McCAUGHAN, M.D.

ST. LOUIS

The bile flows from the liver to the intestine through a duct of fairly uniform diameter which is narrowed suddenly at the point at which it enters the duodenum, at the papilla of Vater. This single channeled bile passage or duct, called choledochus, is placed so strategically that any interference in its patency is fraught with the gravest consequences. Its principal functional failure, therefore, arises from obstruction, the main etiologic factors of which are (1) inflammation, (2) calculi, (3) stricture, (4) tumor, (5) congenital maldevelopment.

INFLAMMATORY DISEASES

These may be classified as (1) catarrhal, (2) chronic infections, (3) suppurative infections, any of which may be primary or secondary to stone or stricture. They also may be secondary to ascending infections from the intestinal tract or even systemic in origin. The following case report is an example of chronic obliterative cholangitis.

CASE REPORT

White female, married, aged 44, was admitted to the hospital on December 31, 1941, complaining of painless jaundice of three weeks' duration with pruritus. Physical examination showed a mass thought to be a distended gallbladder in the right upper quadrant of the abdomen. Icterus index was 46. Cholesterol was 286; diastase 170; erythrocytes 3,150,000; hemoglobin 10.5 or 61 per cent. Urine was normal. Total plasma protein was 6.8 per cent, albumin 2.6, globulin 4.2. Prothrombin time was 67 per cent of normal. Van den Bergh, immediate direct, was positive. Impression was common duct obstruction by stone. At operation January 22, 1942, the gallbladder was found to be distended immensely. A cholecystostomy was performed on the hydropic gallbladder and ten stones were removed. The common duct was opened and probing was done into the duodenum. The hepatic ducts were explored. No stones were found but the common duct was fibrosed markedly and its lumen narrowed. Drains were left in the gallbladder and lesser omental space. On January 27, the icterus index was 80. The icterus index gradually fell to normal. After the drains were taken out, a biliary sinus remained. A roentgen ray examination with lipiodol injection revealed the gallbladder outline but none of the media entered the common duct (fig. 1). The patient was discharged from the hospital but reentered on May 4 and an anastomosis of the gallbladder and duodenum was performed after ascertaining that the lumen of the common bile duct was almost obliterated. The wound healed completely.



Fig. 1. Injection of biliary sinus with lipiodol showing outline of gallbladder. None of the media enters the extrahepatic ducts.

It was indeed fortunate in this case that the first surgeon conservatively had elected to preserve the gallbladder which provided a ready means of shunting the bile back to the intestine.

CALCULOUS DISEASE

The etiology and chemical composition of common duct stones is that of gall stones in general, namely, bile stasis and infection. Probably most stones originate in the gallbladder and pass into

From the Department of Surgery, St. Louis University School of Medicine.



Fig. 2. Flat film of the abdomen. The outline of gall stones in the common duct can be seen readily.

the common duct but intrahepatic stones may form within the ducts themselves. Great variation in size and number are encountered but in two thirds of the cases the stone is single and in 60 per cent the stones are found in the terminal part of the common duct.

Stones in the common duct besides producing local effects on the duct itself may cause serious disturbances in the liver, gallbladder or pancreas. The principal signs and symptoms of common duct obstruction are colic or intermittent pain, usually jaundice, fever, acholic stools, dark urine, dyspepsia. On laboratory examination the roentgen ray is occasionally helpful as is the serum bilirubin and icterus index.

The following case reports emphasize several points of interest.

A. The overlooked stone. In this connection it is interesting to note that Lahey reports that prior to 1926 he explored the common duct in 12 per cent of his patients at the time of gallbladder operation and found stones in 8 per cent and that after 1926 he explored 41 per cent and found an incidence of stones of 10 per cent.

CASE REPORTS

A married female, aged 56, was admitted to the hospital June 29, 1944, complaining of nausea and vomiting, epigastric pain, putty colored stools and intermittent yellow tint to the skin. The first attack occurred in November 1943. The pain radiated to the left lumbar region and down the left hip. The second attack was in March 1944. There was dyspepsia with intolerance to greasy foods, cabbage and cauliflower. The gallbladder had been removed in 1941 in another city. On physical examination, in the region of the right upper rectus scar there was tenderness in the left half of the epigastrium. There was no rigidity and no masses were felt. Urine was normal. The white count was 8,850 and the red count 5,420,000. Icterus index was 12, cholesterol 240 mg. per cent, hemoglobin 15 gms., prothrombin 40 seconds (normal 36 seconds), serum protein total 4.59, albumin 2.9, globulin 1.68. Roentgenogram showed several shadows in the right upper quadrant which were suggestive of gall stones (fig. 2). On July 11, 1944, at a second operation, the common duct was found dilated, thin walled and approximately 2.5 cm. in diameter. The common duct was opened and several large stones were removed from both common duct and common hepatic ducts, also many smaller stones and much bile sand. The duct was irrigated and a T tube sutured in place. There were many adhesions between duodenum and liver. Following operation convalescence was uneventful.

It is of course, not absolutely certain that these stones were overlooked following her first operation. However, on close questioning afterward the patient stated that she had continued to have much the same trouble as before her gallbladder was removed. Furthermore, at the second operation the stump of cystic duct presented a marked sacculation suggesting possibly a higher ligation than is usually customary.

B. This case demonstrates the problem of recurrent common duct stones.

A white female, aged 41, was admitted to the hospital December 2, 1938, complaining of attacks of pain in the epigastrium and right upper quadrant with 15 pounds loss in weight, yellow skin and pruritus. Nausea and vomiting were present. The first attack was fifteen years previously. Since that time the patient had had recurring attacks.

Abdominal examination showed a palpable mass with marked rigidity and tenderness in the right upper quadrant. The white count was 18,350, red cell count 3,140,000, hemoglobin 9.7 gms., icterus index 40. Diagnosis was acute cholecystitis and cholelithiasis and hepatitis.

On operation on December 17, by right rectus incision, an abscess was encountered and opened and the gallbladder entered. Numerous large stones were removed from the gallbladder. The stomach was freed from the left wall of the abscess and the common duct explored. The duct contained numerous large stones strung out like "peas in a pod," and these were removed. The hepatic ducts were probed and a probe was passed in the duodenum. A T tube was sutured into the common duct and a large dressed tube into the gallbladder. The patient had an uneventful convalescence and was dismissed on January 17, 1939. She was readmitted June 4, 1939, this time complaining again of severe righ upper abdominal pain radiating from the abdomen to the back and shoulder blades. The white count was 9,100, icterus index 6.4. She was taken to the operating room by another surgeon as an emergency acute gallbladder case and her gallbladder removed. The common duct and hepatic ducts were explored through the cystic duct. The liver was enlarged and there were many adhesions about the gallbladder. The patient made an uneventful recovery but again on August 28, 1940, was readmitted to the hospital, this time complaining of jaundice and severe pain, nausea, vomiting, pain radiating to between the shoulder blades, chills and fever. The abdomen was tender over the right upper quadrant but there was no muscle spasm. There was no tenderness over the appendiceal region. The icterus index was 26.7 and the white count 14,000. Diagnosis was cholangitis, possible choledocholithiasis.

The patient was operated upon September 3, 1940, the incision made medial to the previous scar. Adhe-

sions were divided separating the duodenum and liver and exposing a dilated common bile duct. The duct was opened and many large stones were removed. The hepatic and common ducts were explored with the finger. A probe and scoops could be passed freely in the ducts in either direction. The pancreas was firm and hard with probably an inflammatory involvement. After thorough irrigation a T tube was introduced. The patient made an uneventful recovery and the T tube was removed later. Cholangiograms made before removing the tube showed good filling of the ducts with no filling defects and the opaque media flowing freely in to the duodenum (fig. 3). This patient has been under observation since her last operation now approximately four years and has remained entirely well.

I present this patient as an example of recurrence or reformation of stones because of the large number of common duct stones encountered at her last operation. They were again packed in the duct like so many "peas in a pod." Furthermore, there is the evidence of the second surgeon that he found no stones in the common duct when he passed probes through the cystic duct stump at the time of her second operation (cholecystectomy).

C. The third case deals with a type of chronic cholangitis in which the liver bile is so loaded with heavy concentrations of bile pigment, cholestered leukocytes and bacteria that the resultant sediment, while not producing discrete calculous structure, forms rather a thick putty-like material which tends to block effectively not only the bile ducts but the surgical drainage tubes as well.

White widowed female, aged 53, entered the hospital in July 1944 complaining of attacks of right upper quadrant pain for one and a half years, occasionally light stools and chills and fever during the previous week. There was no history of jaundice but loss of 60 pounds in weight. Physical examination showed right subcostal tenderness. Urine showed albumin 2 plus, sugar negative. Microscopic examination showed few hyaline and granular casts. Diagnosis was chronic cholecystitis with cholelithiasis.



Fig. 3. Cholangiogram normal except for dilatation of intrahepatic bile ducts. Media passes freely into duodenum.



Fig. 4. Cholangiogram showing marked dilatation of intrahepatic and extrahepatic bile ducts. Although the opaque material flows into the duodenum a filling defect is seen. This is probably a small mass of bile mud.

At operation the gallbladder was found to be subacutely inflamed. It was dilated and there were recent periduodenal adhesions. The cystic duct was dilated 2½ cm. and the common duct to approximately 3 or 3½ cm. Both were thick walled and edematous. The common duct was probed up and down through the dilated cystic duct. A probe could be passed into the duodenum. No stones could be palpated. The gallbladder and appendix were removed. Following the operation, the patient developed a biliary fistula. Two weeks later, August 8, 1944, she was reexplored and the common duct opened. A considerable amount of putty-like material and bile mud was removed from the distal end of the common duct after which a probe could be passed freely into the duodenum. The common duct was still very much enlarged. The scoops were passed, proximally and distally and the duct thoroughly irrigated. A large T tube was sutured into the common duct and a Penrose drain was introduced to Morrison's pouch. Following this, the patient improved but the bile draining from the T tube contained large shreds of mucus and bacteria and on settling a red amorphous mass identified as calcium salt of bilirubin could be seen. A test of the stool on August 14 was positive for bile pigment. Icterus index on August 18 was 13.5. On other occasions the bile test of the feces was negative. The drainage bile was examined frequently and always showed a greenish yellow turbid fiuid containing abundant mucus, sediment and numerous gram negative bacilli on staining. There were occasional pus cells and much debris and a heavy precipitate of crystals. On August 19, a cholangiogram showed the bile ducts well filled with the injected material entering the duodenum (fig. 4). The ducts, however, were dilated. The patient was discharged from the hospital on September 20.

Since discharge the T tube drains bile in varying



Fig. 5. Lipiodol injected into catheter in abdominal fistula. The material enters the stomach. None could be visualized within the bile ducts.

amounts of from 4 to 6 ounces daily. The stools are dark in color and give a positive test for bile. The drainage bile still contains the same reddish precipitate although in much less concentration than at first. A second cholangiogram made since discharge from the hospital shows the lipiodol freely entering the duodenum with somewhat less dilatation of the ducts than previously.

This patient has carried a T tube in her common duct since August 8, 1944. There has been much controversial discussion in the literature on the proper time for removal of the T tube. Dr. E. Starr Judd drained some of his patients a year or more without having stricture formation develop after removal of the tube. I see no hope for this woman except through prolonged common bile duct drainage until such time as her liver bile clears more than it has. Cholegogues, sulfonamides and antispasmodics have been given as medical adjuncts to surgical drainage.

STRICTURES OF THE BILE DUCTS, BENIGN

Strictures may result from congenital obliteration, primary inflammation or secondary inflammation associated with stone in the common duct and postoperative or traumatic stricture. Far too many are of this latter type (operative trauma). The following case report is an example.

A white female, aged 50, was admitted to the hospital complaining of loss of weight and biliary fistula which followed a gallbladder removal elsewhere one year ago. Sometime after the cholecystectomy, the fistula drainage ceased and she became jaundiced and developed severe itching. In April 1944 she had a second operation for the purpose of transplanting the biliary fistula to the duodenum. However, an external fistula again developed and this time not only bile but stomach content as well was discharged. Her weight had fallen from 150 pounds to 87 pounds in the last year. The icterus index at time of entrance to the hospital was from 62 to 83, prothrombin 80 per cent, bilirubin 3.4 mg. per cent. On August 26, 1944, a catheter was inserted in the fistula tract and lipiodol injected. By roentgen ray it was evident that none of the opaque media passed into the biliary tract but instead entered either in the stomach or duodenum (fig. 5).

Exploration of the biliary tract was advised. On September 6, the old scar including the fistula tract was excised (fig. 6 A to E). Adhesions were separated between the liver and duodenum. The duodenum was opened transversely at the exact level of the ampulla of Vater. The terminal segment of the common duct was markedly narrowed at this point and it was, therefore, enlarged by dividing it longitudinally. The gastric fistula was excised after removing several small stones from the common duct with the scoop and irrigating it. A No. 22 catheter was stutured into the common duct and passed distally into the duodenum. The duodenum was next closed transversely with a double row of sutures paying particular attention to making an accurate closure of the sphincter of Oddi. In addition to the fistula from the duodenum, a second fistula tract was also present. This was a very narrow tract which ran toward the hilum of the liver. On opening it, a probe could be passed through it into the common duct. It was evidently the fistula tract which had been transplanted into the duodenum at the previous operation had then subsequently become occluded by scar contraction. It was decided to retain this tract as a temporary safety valve, hence a No. 10 catheter was sutured in the tract and brought out through a stab wound. The patient made an uneventful convalescence and examination by roentgen ray on September 21, 1944, with lipiodol injection into the drainage tube (No. 10 catheter mentioned) showed the opaque media entering the duodenum by way of the common duct (fig. 7). The common bile duct, therefore, seemed to be satisfactorily patent. A later radiologic examination revealed the drainage tube (No. 22 catheter mentioned, as splint for the common duct repair) in the lower intestinal tract. The patient was discharged from the

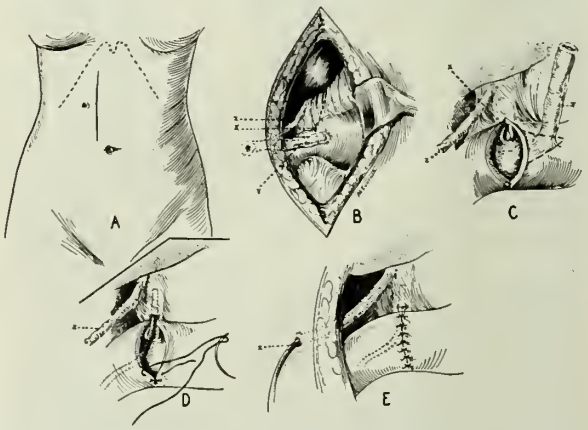


Fig. 6. A. Abdominal incision. B. Dissection of both fistulas. One to the stomach proximal to the pylorus (y) and one to the common hepatic duct (z). Choledochus is buried in adhesions but its outlines are indicated by the dotted lines; (x) is the site of a stricture. The duodenum was attached to abdominal wall by dense adhesions. C. Duodenum separated from abdominal wall opening into its lumen at the ampulla of Vater. The gastric fistula was excised along dotted line and the common duct stricture incised longitudinally. D. A catheter was placed in distal end of common duct as a form for its reconstruction. Closure duodenum and common duct transversely with sutures. E. Final appearance. Long end of catheter passes distally into the duodenum, the small fistula to common hepatic duct was preserved as "temporary safety valve."

hospital on September 26 feeling much improved but reentered the hospital on November 18, 1944, with small subcutaneous accumulation of bile around the old external fistula tract. This was opened and drained and she was discharged November 27 and has had no trouble since.

The successful repair of stenosed and strictured bile ducts presents problems attended by as great technical difficulties as anything the abdominal surgeon is called upon to do. Some of the reported causes of postoperative biliary stricture listed from the literature are: (1) inclusion of common duct with the ligature to the cystic duct; (2) pressure of drains on the wall of the common duct; (3) foreign body granuloma around the ligature on the cystic duct; (4) the use of oversized T tube with pressure necrosis of the common duct; (5) direct ligation or section of the common duct; (6) slow leakage from the ligatured cystic duct causing extra ductal bile pockets or inflammatory masses around the common duct; (7) local infection following cholecystectomy.

TUMOR OF THE BILE DUCT

Tumors of the bile ducts both benign and malignant are rare. Marshall reports only thirty-four carcinomas of the bile ducts exclusive of the ampulla of Vater in 22,000 operations in the bile passages. The signs and symptoms depend on size and position but jaundice, loss of weight, cachexia, pruritus, chills, fever and pain (in two thirds of the cases) may be expected. The pathologic types are villous, diffuse and nodular or annular. Ampullary tumors differ somewhat in type.

The first case is an example of malignant neoplasm involving the entire extrahepatic biliary tract.

A white woman, aged 59, was admitted to the hospital on February 6, 1940, complaining of jaundice and colicky pain in the right upper quadrant of the abdomen during the preceding four weeks. There was also bloating and distention. Itching was severe. She had had jaundice with colic in this region eighteen years previously but recovered following the removal of gall stones from her gallbladder. On examination intense jaundice with severe pruritus was found. A tense mass could be felt in the region of the gallbladder. Laboratory studies indicated an obstructive jaundice. The icterus index was 90. Van den Bergh test showed delayed direct reaction. A diagnosis of either common duct stone or cancer of the head of the pancreas was made. Exploration was advised and at operation the gallbladder was found to be distended greatly. The common and extrahepatic ducts also were dilated. The gallbladder was opened and a number of large stones were removed. A mass of soft tissue was present and a piece was sent to the laboratory for a frozen section. A low grade carcinoma was reported. This tissue evidently filled the common and both hepatic ducts as no bile could be obtained from any part of the biliary tract by the aspirating needle. A probe was passed up through the tumor tissue into the right hepatic duct by way of the gallbladder in an endeavor to open up a channel for bile. A tube was placed in the gallbladder and directed into the "false passage" thus made. Examination of the tissue revealed a papillary carcinoma of the gallbladder. The following description was given. Microscopic examination showed necrotic tissue with areas of malignant cells arranged in the form of papillae. These cells vary in size and shape and show some mitosis. Section of the liver reveals fibrosis but no evidence of malignancy. The patient died five weeks later suffering intensely from pruritus which gave her no rest. Only slight drainage of bile externally was secured by way of the gallbladder drainage tube. The postoperative icterus index level varied from 120 to 225.



Fig. 7. Cholangiogram showing injection of lipiodol by way of catheter in common hepatic duct fistula. Media enters duodenum freely. Some may be seen in the intrahepatic ducts. The common duct is well outlined. The rubber catheter used for common duct reconstruction has passed downward and may be seen lying in lower intestinal tract.

This was a hopeless case. There was apparently no chance of doing anything at all for her surgically even in a palliative way.

Tumors of the ampulla and of the head of the pancreas cause early biliary obstruction and call for surgical relief either by palliative cholecystenterostomy or by radical attempts at duodenectomy as advocated by Whipple, Clute, Brunschwig, Gordon, Taylor and many others. The second case is an example of palliative treatment for obstruction to the common bile duct due to a mass situated in the head of the pancreas.

A white female, aged 73, was admitted to the hospital on October 13, 1933, complaining of loss of 20 pounds of weight, yellow coloring of the skin and itching. The stools were light in color and she stated she was having from ten to twelve bowel evacuations per day. Three weeks before admission she had first noticed jaundice. There was no pain. She had vomited twice. Swelling of the feet was noted two weeks prior to admission. There was no previous history of dyspepsia but of late she had become nauseated after ingesting fatty foods. Physical examination revealed a marked asthenia and cachexia. The skin and sclera were jaun-

diced deeply and there were numerous scratch marks over the skin. No abdominal tenderness and no masses could be felt. Erythrocytes were 3,700,000. Hemoglobin was 12 gms. The Van den Bergh was direct, prompt indirect and quantitatively measured 13.8 mg. per cent. Stools were negative for bile. A diagnosis of obstructive jaundice, probable carcinoma of the head of the pancreas was made and operation advised.

At operation a mass in the head of the pancreas approximately 6 by 4 by 3 cm. was felt. The tumor was somewhat fixed and the common duct was dilated two and a half times in diameter. It was thin walled and no glands or stones could be palpated. The gallbladder also was distended, thin walled, and no stones could be felt. No nodules were noted in the liver. A cholecystoduodenostomy was performed with three rows of sutures.

The patient made an uneventful recovery and was relieved of pruritus as the jaundice completely disappeared. One and a half years after operation it was reported by a relative that the patient had died in another state of a "stroke." Information given was that she had remained entirely free from an recurrence of jaundice and had no abdominal pain or discomfort to the time of her death.

One can hardly deny the gratifying results of palliative surgery in this type of jaundice. Occasionally an obstructing mass at the head of the pancreas is later revealed as inflammatory by the continued well being of the patient far beyond the expected survival period of cancer. I have attempted several two stage duodenectomies but results have not been satisfactory. The operation has been constantly modified and improved but the mortality which is better than 33 per cent and the relatively short period of survival (numbered in months) in those patients who manage to make an immediate operative recovery emphasizes again that this procedure must be considered as yet in the pioneering stage.

539 N. Grand Glvd.

CARCINOMA OF THE PROSTATE GLAND, AND BENEFITS OF DIETHYLSTILBESTROL OR ORCHIECTOMY

CARL A. WATTENBERG, M.D.

ST. LOUIS

The treatment for cancer of the prostate gland has been advanced greatly by the findings of Charles Huggins[1, 2] and his coworkers. Huggins in 1941 first showed the benefit of bilateral orchiectomy or the giving of an estrogen or both as treatment for carcinoma of the prostate gland. These were not given as a cure of the prostatic cancer but as a means of control of the tumor; and the palliation accomplished by the treatment is very striking.

Carcinoma of the prostate is a frequent finding. Hugh H. Young[3] in 1935 published statistics which revealed that a fifth of the male patients who seek relief from obstruction of the vesicle neck have carcinoma of the prostate gland. The frequency of prostatic carcinoma in elderly men also is shown by autopsy reports. In such a study, Robert A. Moore[4] found prostatic carcinoma in 14 per cent of subjects between 51 and 60 years of age, and in 23 per cent of his subjects between 61 and 70 years of age. It is evident, therefore, that the possibility of carcinoma of the prostate must be kept in mind in every patient past middle life.

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DIAGNOSIS

The diagnosis of carcinoma of the prostate may not be easy to make in some instances. Many times the tumor is slow-growing and insidious and can be difficult to diagnose by palpation. The prostate gland may be small and firm, being quite typically a fibroadenomatous type of gland on rectal palpation and still be carcinomatous with widespread metastasis to bone, lymph tissue or various organs of the body. Rectal palpation in this type of gland has a 20 or 25 per cent failure. An area of scar tissue or prostatic calculi may suggest carcinoma and be very difficult or impossible to diagnose by rectal palpation. A small area of carcinoma in a large adenomatous prostate is also a difficult diagnostic problem. The typical prostatic carcinoma which is unyielding, boardlike, tense, fixed and irregular is diagnosed easily on rectal palpation.

The acid and alkaline phosphatase data are of help in making a diagnosis when positive, but a patient can have advanced metastatic cancer of the prostate and still have present normal values in the blood determinations. The acid phosphatase is an enzyme which is present in, and apparently is elaborated by, the prostatic glandular epithelium as Gomori[5] has shown by a special histochemical technic. The enzyme normally is excreted by way of the prostatic fluid.

In 1936 Gutman, Sproul and Gutman[6] noted that tumor cells arising from prostatic epithelium retain the capacity to elaborate "acid" phosphatase in high concentration. Large amounts of the enzyme were found in carcinomatous prostatic tissue, not only in the primary tumor but also at the site of distant metastases.

If the prostatic cancer has an active secretory function and the secretion finds its way into the blood stream, one should find an elevated serum "acid" phosphatase. A serum "acid" phosphatase above 4 King-Armstrong units is suggestive of prostatic carcinoma. However, if the value is lower than 4, there are several possibilities: The patient may not have a cancer of the prostate gland, or the cancer has a low secretary function, or the secretion (enzyme) is not entering the blood stream. In prostatic carcinoma, if the acid phosphatase is elevated and the patient has either a bilateral orchiectomy or is given an estrogen such as diethylstilbestrol, the elevated acid phosphatase usually drops rapidly to a normal value.

The "alkaline" phosphatase is an enzyme and is produced by bone involvement from carcinoma of the prostate gland. Increased amounts of this en-



Fig. 1. Photograph of roentgen ray of pelvis showing early metastatic involvement from prostate gland cancer. There is an increased density present in the ilium and areas of destruction present in the ramus of the ischium.

zyme appear in the blood in certain other diseases, as of the liver or bone. The "alkaline" phosphatase has a normal figure of about 6 to 8 Bodansky units. If the alkaline phosphatase is elevated and the patient has a bilateral orchiectomy, the value usually drops to normal and remains normal for an indefinite period of time. However, if the alkaline phosphatase is elevated and the patient receives diethylstilbestrol, the value is decreased and soon begins to become elevated again, which might be due to the effect of diethylstilbestrol on the liver itself giving a liver change. Estrogens are known to produce liver changes. Recently I[7] had a patient who developed toxic hepatitis from diethylstilbestrol while being treated for carcinoma of the prostate gland.

Roentgen ray films are helpful in making a diagnosis of bone involvement from carcinoma of the prostate gland. One can not be sure, however, that the primary site is prostate carcinoma even though the roentgen ray film shows metastatic skeletal carcinoma. The metastatic bone carcinoma from the prostate gland can look like carcinoma from other primary sites on roentgen ray film. The pelvic girdle film usually is the first to show metastatic prostate carcinoma. The lumbosacral vertebra also is involved frequently. The usual roentgen ray picture of the bones invaded by the tumor is one of an osteoplastic nature. There is marked increase in formation of bone with areas of lighter mottling which suggest some destruction, as seen in figure 1. A far advanced metastatic prostatic carcinoma is shown in figure 2.

The only definite method of diagnosing prostate carcinoma is based upon the microscopic examination of a biopsy specimen. Procuring such a specimen for biopsy is done usually by means of a transurethral resection instrument, or with the screw biopsy instrument as devised by D. K. Rose. The screw biopsy instrument is inserted through the perineum and guided with a finger in the rectum. The instrument is directed to the suspicious area for biopsy material and is quite accurate. The transurethral method can fail in that the tumor can be small and not yet near the prostatic urethra.

TREATMENT

There is no standard treatment for carcinoma of the prostate. Many methods are available and every case is an individual problem. However, either diethylstilbestrol or bilateral orchiectomy or both should be used in every case.

In a recent survey of leading urologists, made by Meads,[8] it was found that twenty-three of seventy urologists advised castration as soon as a diagnosis of prostatic cancer could be made even though no metastatic lesions could be found and even though the patient had no pain. The remaining forty-seven well known urologists were convinced that castration should be performed later, that is, when signs of metastasis had developed, the patient was having pain, roentgen ray films were positive, or serum acid phosphatase was elevated.

My plan of treatment has been to use diethylstilbestrol as soon as the patient has a positive diagnosis of prostatic cancer. The oral dosage of diethylstilbestrol varies from ⅓ mg. to 10 mgs. a day, the dose depending on the patient's response and on the side effects caused by the diethylstilbestrol. Orchiectomy is advised when the patient has signs of metastasis, the serum acid phosphatase is high, the prostatic tumor is enlarging while the patient is taking sufficient doses of diethylstilbestrol, or the patient does not tolerate full dosage of diethylstilbestrol. The diethylstilbestrol without orchiectomy is given to patients without



Fig. 2. Photograph of roentgen ray of the pelvis which shows far advanced metastatic carcinoma of the prostate gland in a 63 year old patient. When first seen, on September 16, 1943, and admitted to Barnes Hospital, the patient had a serum "acid" phosphatase of 86.4 units per cent. Alkaline phosphatase was 13 Bodansky units. Nonprotein nitrogen was 18 mg. per cent. His weight was 98 pounds. The patient was having extreme pains in his back and legs, requiring morphia hypodermically every few hours. The prostate was irregular, enlarged and very firm. Microscopic section of it showed adenocarcinoma. The patient was given diethystilbestrol. The serum "acid" phosphatase was 7 units per cent on October 1, 1943. On December 11, his testicles were removed and he was taken off diethylstilbestrol. On April 18, 1945, his weight was 132 pounds. Skeletal roentgen rays showed no evident extension of bone metastasis. The patient was much improved and was taking only an occasional aspirin for discomfort. The prostate rectally was flat and smooth. The patient felt well generally.

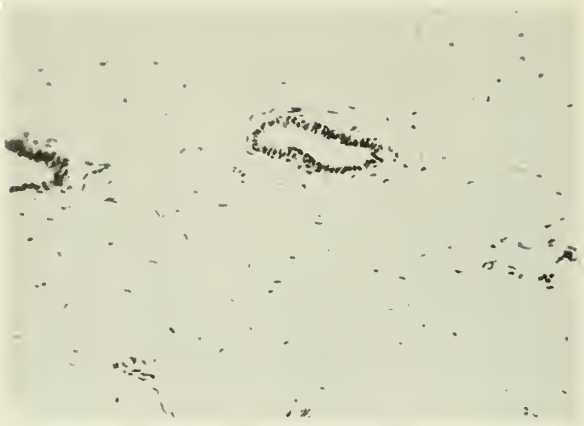


Fig. 3. Breast tissue from a male before diethylstilbestrol treatment for carcinoma of the prostate gland.

known metastasis or to patients who refuse orchiectomy. These refusals are few when the situation is discussed properly with the patient who has cancer of the prostate gland. Diethylstilbestrol can be given even though the patient has had an orchiectomy but a smaller dose is needed to control pain and tumor growth. Many patients who have an active secretory factor, that is, an elevated serum acid phosphatase, and then have the testicle substance removed, will have a lowered serum acid phosphatase level. But sooner or later this value will increase again. This increased value means continued or increased secretory function. The small dose of diethylstilbestrol will keep the secretory function down which, in turn, helps control the growth factor.

There are certain benefits obtained from both diethylstilbestrol and castration. These induce a softening of the prostate gland carcinoma with a regression in its size. I have had a few cases with large, irregular, hard and fixed prostatic cancers, the cancers causing obstruction to complete urination. The bladder is distended in some cases to the umbilicus, and each voiding results in only a small amount of urine with no infection being found on methylene blue stain of the centrifuged urine. In these cases I have tried not to use a catheter or a urethral instrument so as not to infect the urine. Rather I have given full dosages of diethylstilbestrol or have performed a castration or both. After such treatment the cancerous gland rapidly regresses in many cases and allows a free easy urination. Soon the patient empties his bladder completely and never becomes infected by catheter or instrument. The patient also is saved an operation on the prostate by this method.

If the carcinoma is a small area and not fixed to adjacent areas, in a large adenomatous prostate gland, then one can do a perineal or suprapubic prostatectomy.[9] The suprapubic removal is done in one stage by the "simplified" method.[10] If the carcinoma is larger and the prostate not so definitely large and adenomatous, a transurethral resection is the procedure of choice.

Roentgen ray therapy is of great value in treating carcinoma of the prostate gland. This treatment is of considerable help when the tumor already has spread to the pelvic bones or bladder wall itself. The roentgen ray probably never has cured a cancer of the prostate gland but it has retarded growth. Less roentgen ray therapy is necessary now, when used along with hormone treatment or castration, than was needed before the work of Huggins.[1,2] One should never forget the value of roentgen ray therapy for these patients.

SIDE EFFECTS AND BENEFITS OF TREATMENT

There are certain reactions or side effects which can occur during the giving of diethylstilbestrol. Seldom does one see a patient who has nausea, vomiting, dizziness or headaches from oral diethylstilbestrol. If this does occur, it usually occurs even though a very small dose was given. Many of the patients have enlarged and painful breasts. These conditions recently were described in detail.[11,12] They are not serious except for the discomfort which often causes the patient to stop the diethylstilbestrol or decrease the dosage of the drug to too low a value. The breast changes which occur are a proliferation of the duct epithelium. There is also considerable edema of all the breast tissues and an increase in the connective tissue with an increase in vascularity. A section of a male breast before administration of diethylstilbestrol is shown in figure 3, and figure 4 is the same male breast after diethylstibestrol therapy.

Edema of the lower extremities, and occasionally of the penis and scrotum, also occurs as a side effect or reaction during the giving of an estrogen or diethylstilbestrol. The edema is due to a decreased renal excretion of sodium and chloride which in turn keeps water in the tissues with a reduction in urine volume, causing dependent edema.

Large doses of diethylstilbestrol may bring about liver changes which may cause a "toxic hepatitis" and jaundice. A recent case has been reported.[7]

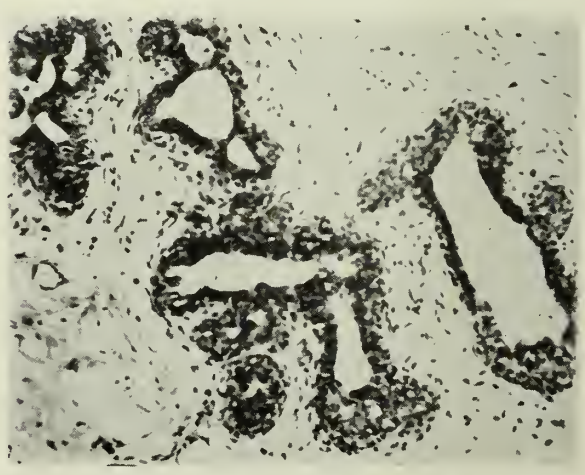


Fig. 4. Tissue from the same breast as in figure 3 after one hundred twenty days and a total of 2,145 mg. of diethylstilbestrol.

This toxic change can be guarded against by a nutritive diet and vitamins since the hepatitis is the result of a change in the glycogen storage in the hepatic cell.

A patient with carcinoma of the prostate gland receives many benefits from diethylstilbestrol or castration or both. The prostate cancer mass itself will regress in size, and with this regression of the tumor, the prostate will become much softer. This allows less or no obstruction and freer urination. Figure 5 shows the prostatic cancer before treatment and figure 6 shows the carcinoma after treatment. The metastatic carcinoma also regresses, be it in bone, lymph nodes or other tissue. I have seen cases in which the lower intestine was obstructed by the tumor, but after diethylstilbestrol or bilateral orchiectomy the bowel obstruction was relieved completely. Lymph node masses have been large and then have regressed to nearly normal size. The acid and alkaline phosphatase, if elevated, return to a more nearly normal level.

One of the most striking benefits from this therapy has been the relief of pain. Pain requiring half a grain of morphine hypodermically every few hours has been relieved for good like magic in less than twenty-four hours.

With these benefits comes a noticeable change in the patient. He has a feeling of well-being. His appetite improves and he gains weight. The red blood count, which had decreased greatly, becomes more normal in a few weeks. The sedimentation rate, a measuring stick of clinical progress, usually is deviated before therapy, but remarkable improvements occur almost immediately after therapy is begun.

It is difficult to compare serial roentgen ray films of bones because of differences in filming technic, position of the patient and such. However, roentgen ray film have shown that an osteoblastic metastasis can become osteosclerotic after therapy, the bone tumor being greatly retarded. This increased density does not mean more tumor but, rather, calcification. There also can be present with this change a smoother bone surface.

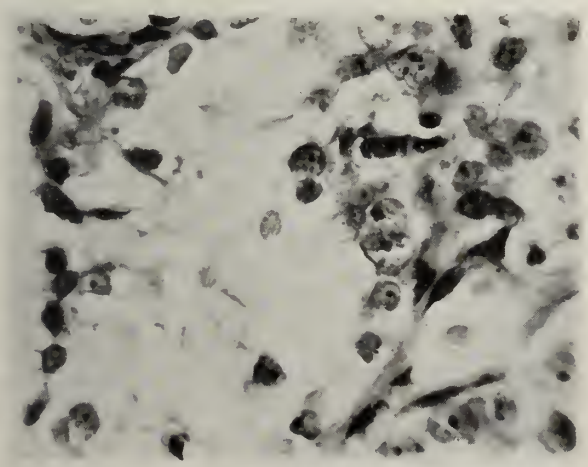


Fig. 5. Carcinoma of prostate before the patient had been given an estrogen.

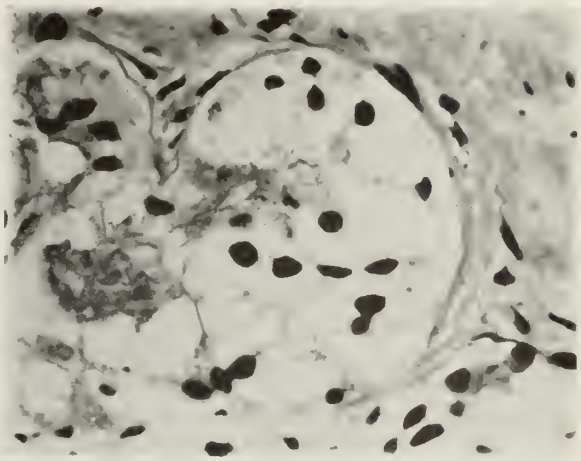


Fig. 6. Carcinoma of the prostate after the patient had been treated with diethylstilbestrol.

There is no evidence that diethylstilbestrol or castration or both can cure carcinoma of the prostate gland. Nevertheless, the continued observation of these patients makes it clear that both primary and metastatic lesions can be made to regress and remain latent. Life can be prolonged in greater comfort and useful activity can be achieved even in many apparently hopeless cases.

3720 Washington.

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SKIN GRAFTING IN HEMOPHILIA

Two Boston physicians—Charles S. Davidson and Stanley M. Levenson—report a successful skin graft operation on a patient with hemophilia in the June 30 issue of *The Journal of the American Medical Association*. They controlled the bleeding by applying a mixture of powdered sulfanilamide and thrombin, the enzyme which is responsible for coagulation of the blood.

CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 71

PRESENTATION OF CASE

E. R., a 21 year old married housewife, entered Barnes Hospital on December 25, 1944, and died January 12, 1945.

Chief Complaints.—Headache, nausea and vomiting, weakness and dizziness.

Family History.—Father, aged 47, was thought to have had tuberculosis but this was not proven.

Past History.—The patient had never been very strong, but there were no recognized illnesses other than a cough several years previously. She had had frequent winter colds. Her appetite was good and she maintained a normal weight. She lived on a farm.

Present Illness.—In August 1944, the patient had an abnormal menstrual period. No further bleeding occurred until November when a sudden profuse hemorrhage appeared and she fainted. She was taken to a hospital where a curettage was performed. While there she was given sulfonamide drugs. These were continued on discharge from the hospital until December 11. On December 13 she developed a headache and the following day chilly sensations and fever appeared. The fever persisted and on one occasion reached 103 F. The headache, which was of moderate severity at onset, gradually became intensified, and was continuous. It became extremely severe. She became nauseated several times and vomited. Shortly after discharge from the hospital a feeling of oppression in the chest appeared, associated with some pain which was not well described. A cough developed, and continued, with production of sputum and a small amount of blood. Weakness, dizziness and occasional fainting spells made their appearance, and these persisted. On December 24 the patient developed a stiff neck and became somewhat mentally obtunded and delirious. She had received sulfonamide drugs, liver therapy for apparent anemia and, on the day previous to admission, 150,000 units of penicillin.

Physical Examination.—Temperature was 39 C., pulse 120, respiration 22, blood pressure 108/70. The patient appeared pale and acutely ill. She was lethargic but was readily aroused. Her memory appeared good and she answered questions coherently. The skin was pale, hot and dry. The upper respiratory tract was normal. There was slight dulness over the base of the right lung. There was no alteration of breath sounds; no rales were heard. The heart was not enlarged. The rhythm was regular, the rate rapid. There was a soft systolic murmur over the apex and the base. In the abdomen, the tip of the spleen was palpable but there were no other abnormal findings. There was a thick, purple vaginal discharge. The fundus was not outlined. The adnexae were normal except for slight tenderness. Neurologic examination revealed the following findings: The pupils were equal and reacted to light and accommodation. Moderate photophobia was present. Visual fields were grossly normal. There was a nystagmus on lateral gaze. The optic discs showed early choking bilaterally. The retinal veins were engorged. There was marked stiffness of the neck and a suggested Kernig sign. The tendon reflexes of the extremities were hyperactive. Babinski and Oppenheim signs were present on the left.

Laboratory Findings.—Blood count: red cells 2,700,000, hemoglobin 11 gms., white cells 6,100, differential count: basophils 1 per cent, juveniles 2 per cent, stab forms 23 per cent, segmented forms 38 per cent, lymphocytes 28 per cent, monocytes 8 per cent. Urinalysis: specific gravity 1.026, albumin 2+. Stool examination—negative. *Blood Kahn* test—negative. *Cervical smear*—negative for gonococci. Lumbar puncture showed initial pressure 510 mm. H_2O. Spinal fluid, clear; cell count 426 with 97 per cent lymphocytes; protein 99 mgs. per cent, sugar 33 mgs. per cent, chloride 436 mgs. per cent. On standing a pellicle formed.

A gynecologic examination revealed no evidence of pelvic infection. Penicillin therapy was continued without obvious improvement.

A roentgenographic examination of the chest showed the cardiac silhouette and aorta to be within normal limits. The hilus shadows were prominent. The lung markings were coarse and feathered, extended far out and interlaced. The parenchyma was clear. There was some calcification in the right lung suggestive of a primary Gohn complex. Skull films showed no pathologic changes. During the patient's residence in the hospital the temperature ranged between 38 C. and 40 C. The white blood cells varied between 6,000 and 12,000 until a terminal aspiration pneumonia occurred and a count of 22,000 was recorded. Neurologic findings varied little from admission other than the appearance of left sixth nerve weakness and skin hypersensitivity which became marked. The patient did not cough while in the hospital until the terminal pneumonia developed. About that time she became incontinent of urine and feces. She gradually became more obtunded and comatose and died quietly.

Eleven lumbar punctures were performed. The spinal fluid from most of them showed an initial increased pressure and a cell count between 300 and 450 per cubic millimeter. In the beginning lymphocytes predominated, but on three occasions polymorphonuclear leukocytes were numerous; at one time the count reached 85 per cent. The spinal fluid sugar gradually diminished and disappeared. Chloride likewise diminished with successive determinations and disappeared. Protein remained

constant at about 100 mgs. per cent, then rose continuously thereafter. The Ayala index never exceeded 5.5 and averaged about 4. Culture revealed no organisms.

CLINICAL DISCUSSION

DR. HARRY ALEXANDER: This patient was a young woman, 21 years of age, who had been in good health until an abortion five months previous to admission. Dr. Harford, what is the relation of the abortion to the terminal illness?

DR. CARL HARFORD: I do not believe there is any relation.

DR. ALEXANDER: Dr. Wood, what bacteria are usually found in an infected abortion?

DR. W. BARRY WOOD: The most frequent are staphylococcus and streptococcus.

DR. ALEXANDER: If the abortion had been caused by any of these organisms would you presume that there was blood stream infection that reached the brain?

DR. WOOD: That could be postulated.

DR. ALEXANDER: How could the bacteria go from the uterus to some other location without going directly through the blood stream?

DR. WOOD: The lung, for example, may become infected through the pulmonary vein and many small abscesses may form. As these enlarge, the bacteria enter the arterial side and thus reach the brain.

DR. ALEXANDER: The history of pain in the chest and cough, with production of bloody sputum, during this patient's illness are suggestive of an infected infarct. Dr. Goldman, do you think that is a possibility?

DR. ALFRED GOLDMAN: Yes, I do.

DR. ALEXANDER: A radiograph was taken approximately two weeks after that episode and there was no evidence of an infected infarct. Is that also possible, Dr. Goldman?

DR. GOLDMAN: That is quite possible, although it is not likely.

DR. ALEXANDER: Dr. Levy, do you believe that this patient may have had a brain abscess from some infection in the pelvis?

DR. IRWIN LEVY: Yes.

DR. ALEXANDER: Is sterile spinal fluid recovered from a patient with a brain abscess as is sterile pleural fluid from a lung abscess?

DR. LEVY: That is correct.

DR. ALEXANDER: Under those circumstances, assuming that this infection is pyogenic, would it be compatible to have a lymphocytic response such as this patient had?

DR. LEVY: It is compatible but not usual.

DR. ALEXANDER: In view of the fact that it is not usual why do you believe that this patient had a brain abscess?

DR. LEVY: Because of the sequence of events—a pelvic infection followed by a chest involvement that was apparently metastatic, and then cerebral manifestations. The spinal fluid was under high pressure, which is compatible with an abscess. The Ayala index was quite low and this is usually found with space-occupying lesions. The cell count would not be incompatible with a sterile meningeal reaction, and at one time the cell count reached a level of 85 per cent polymorphonuclear leukocytes. At that time it was thought that the abscess had ruptured into the subarachnoid space. On admission the sugar and chloride levels of the spinal fluid were within normal limits, which observations are also compatible with a cerebral abscess and a meningeal reaction.

DR. ALEXANDER: What is the Ayala index and how is it used?

DR. LEVY: The Ayala index measures the reservoir of fluid which, when below normal, indicates a space-occupying lesion. If a stated amount of fluid is withdrawn, there is a greater drop of pressure than is normal. If the index is below five a space-occupying lesion is quite certainly indicated. The index in this case was always below six and even dropped as low as four at times.

DR. ALEXANDER: Dr. Jones, do you believe that this patient had a brain abscess?

DR. A. B. JONES: I am not sure that this patient had a brain abscess because of the spinal fluid findings, which are not the usual findings seen in brain abscess. In tuberculous meningitis the sugar level is usually low and the chloride level is low. This cell count of the spinal fluid was not characteristic of tuberculous meningitis nor was the pressure characteristic of tuberculous meningitis or brain abscess. In view of the abortion, I would suggest multiple abscesses and, in view of the laboratory findings, I favor a diagnosis of tuberculous meningitis.

DR. ALEXANDER: Dr. Moore, what is the significance of the blood count in this case?

DR. CARL MOORE: There was a surprising number of lymphocytes for a person whose temperature ranged between 38 and 40. If this infection was pyogenic, the differential count was unusual.

DR. ALEXANDER: In an acute brain abscess is there usually acute leukocytosis, Dr. Sachs?

DR. ERNEST SACHS: No. One of the striking things about brain abscess is that it does not show signs of infection except in the acute stage. I saw this patient and I thought the signs and symptoms were typical of tuberculous meningitis.

DR. ALEXANDER: Why did you rule out the diagnosis of brain abscess?

DR. SACHS: In the first place, the patient did not have a slow pulse. If there had been an abscess of any size a slow pulse would have been one of the characteristic symptoms. In the second place, there was a question in my mind as to whether or not she had a choked disc. She had a blurring of the disc but she did not have any definite evidence of a choked disc. The high lymphocyte count in the spinal fluid, the high fever and low sugar level are all characteristic signs of tuberculous meningitis rather than of brain abscess.

DR. ALEXANDER: In tuberculous meningitis do the cells in the fluid continue to be lymphocytic or do they begin to change, as in this case in which 85 per cent were at one time polymorphonuclear?

DR. SACHS: I would question the validity of the counts taken in this case. If a patient has repeated spinal punctures the irritation of the puncture may produce such a change, but is it unusual.

DR. JONES: The polymorphonuclear cells usually are present early in the disease but later change to lymphocytes. It is certainly not usual to start with lymphocytes, change to polymorphonuclear cells and revert to lymphocytes in tuberculous meningitis.

DR. CARL MOORE: Fremont-Smith, after study of the spinal fluid from 84 patients with tuberculous meningitis, states that polymorphonuclear leukocytes were found in most of the fluids and, when predominant in count, they usually persisted throughout the course of the disease.

DR. EDMUND A. SMOLIK: I would like to ask Dr. Moore if he found any record of red cells occurring in tuberculous meningitis?

DR. CARL MOORE: Fremont-Smith reports that the fluid is usually free of red cells.

DR. ALEXANDER: Is it significant that the fluid from this patient developed a pellicle after standing, Dr. Jones?

DR. JONES: Yes.

DR. ALEXANDER: Do you think it is pathognomonic of tuberculosis if a clear fluid, on standing, develops a pellicle?

DR. JONES: No, but it is of great importance. I have seen pellicles form in fluid from patients with brain abscesses.

DR. ALEXANDER: If we assume that this patient had

tuberculous meningitis, where was the primary focus of infection, Dr. Goldman?

Dr. Goldman: According to Rich and McCordock, most of the cases originate from localized lesions in the brain or in the meninges. The primary infection is frequently in the lung. In this case the patient may have had a dormant lesion somewhere near the surface of the brain which became active upon the occasion of the present illness.

Dr. Alexander: She may have had a tuberculous lesion of the uterus and, after a curettage, developed dissemination. It is interesting that it did not affect the lung. Assuming that, following the curettage, a tuberculous focus was released, would you expect to find tubercles in a radiograph of the lungs, Dr. Bottom?

Dr. Donald Bottom: Yes.

Dr. Harold Scheff: The dilatation of the small intestine with gas might indicate a mild ileus due to a lesion in the pelvis.

Dr. Alexander: That is a good point. However, when the pelvis was examined by the gynecologist, nothing significant was found. Dr. Wilson, do you have any suggestions?

Dr. Keith Wilson: The patient's former physician definitely stated that she had had a pregnancy that had been interrupted. We at first thought she had encephalomeningitis and we therefore administered penicillin, to which there was no response. We also thought she might have had infarcts of the lungs from the pelvic manipulation because the respiratory episode came on about the time of the pelvic examination.

Dr. Carl Harford: I think it is worthwhile to point out that choked discs have been described in tuberculous meningitis. Also, an Ayala index of the magnitude present in this patient could be produced by a subarachnoid block, which may occur in tuberculous meningitis.

Dr. Alexander: Was there any evidence of a subarachnoid block?

Dr. Harford: I think the Ayala index may suggest such a block.

Dr. Alexander: Do you think a subarachnoid block was present in this case, Dr. Sachs?

Dr. Sachs: The only way I know of to determine definitely a subarachnoid block is to do a ventricular puncture.

Student: Is the decreasing chloride characteristic of tuberculous meningitis and cerebral abscess?

Dr. Alexander: It is characteristic of tuberculous meningitis but I do not know if it is observed in cerebral abscess.

Dr. Wood: I think this case well illustrates the importance of following signs over a long period of time when they are not considered to be of diagnostic value. When this patient was first admitted to the hospital there was some confusion about the diagnosis. However, after the patient had been in the hospital for almost three weeks the changes in the spinal fluid became apparent and the most likely diagnosis was tuberculous meningitis. To make that diagnosis in the first week would have been much more difficult. The transient appearance of polymorphonuclear leukocytes in the spinal fluid is difficult to explain except by the suggestion made by Dr. Sachs; that it is a manifestation of irritation in the subarachnoid space, possibly due to repeated punctures. The fact that it was transient makes it look like an irritative phenomenon, since it eventually reverted to the original type of count. When there is sudden irritation of the meninges, that is exactly what happens—the cell count rises and the leukocytes increase. The cause for the irritation of the meninges is obscure unless the repeated mechanical removal of fluid may have changed the relations or a tubercle may have ruptured into the subarachnoid space.

Dr. Levy: Another point worth mentioning is that the protein rose at the same time that the polymorphonuclear count increased.

Dr. Wood: That would happen with any irritation, would it not?

Dr. Levy: I do not think it would happen in a mechanical irritation but it would happen if there were a change in the type of meningitis.

Dr. C. Moore: It should also be pointed out that the low spinal fluid sugar in tuberculous meningitis is a complete mystery. According to the studies by Fremont-Smith, if sterile spinal fluid is incubated with either lymphocytes or polymorphonuclear cells, the spinal fluid sugar remains at the same level. If infected spinal fluid is used, the spinal fluid sugar will fall. There has never been any explanation for this fall in spinal fluid sugar in tuberculous meningitis as the number of organisms is quite small.

ANATOMIC DIAGNOSIS

Fibrocaseous nodules in the lower lobe of the right lung and in a right bronchopulmonary lymph node.

Tuberculous leptomeningitis.

Gastromalacia with perforation of the wall of the stomach.

Bronchopneumonia of all lobes of the lungs.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: Today's conference presents an unprecedented situation in that the fourteen diagnoses from the faculty are unanimously for tuberculous meningitis. However, the students did not entirely agree among themselves. Out of forty-five diagnoses from the students, thirty-five are for tuberculous meningitis.

On the basis of the gross examination the presumption is that this patient had tuberculous meningitis associated with a fibrocaseous nodule of the lung and lymph nodes but without any other dissemination through the viscera.

Microscopically, the meninges show the characteristic appearance of tuberculous meningitis. In the adventitial layer of the blood vessels the epithelioid cells are arranged in the radial form characteristic of the disease. In the adjacent tissue there is exudation of fluid and fibrin so that the meninges are greatly thickened and, in many places, there is caseous necrosis of this exudate. In histologic sections no evidence is found that any bacteruim other than the tubercle bacillus and acid-fast bacilli are demonstrable in the sections of the meninges. The slight invasion of the cerebral substance occasionally seen in tuberculous meningitis is a little more prominent in this case than usual. The cellular exudation is made up of large mononuclear cells, lymphocytes and a few polymorphonuclear cells, the latter in direct association with necrosis.

There is no evidence of tuberculous infection of the uterus or of the tube and there is no absolute evidence that this woman had a pregnancy five months before death since there were no remnants of placenta nor any decidual reaction. However, I do believe that she did have a pregnancy as the beginnings of the spiral arteries going into the endometrium are greatly thickened. This is the type of change expected in those vessels following a pregnancy.

The only evidence of tuberculosis is in the lung and in the intracranial cavity. There is no vascular dissemination. This patient did not have miliary tuberculosis. It is reasonable to assume that the lesion in the lung was primary and that at some time a few tubercle bacilli were disseminated into the blood stream, the tuberculoma was formed in the brain or meninges, and a few weeks before death tuberculous meningitis developed following rupture of that tubercle.

The lesion in the stomach is gastromalacia. It represents an agonal or postmortem process usually found in patients who have some intracranial lesion. The re-

lation has never been clearly established but there is a close association of an intracranial lesion, especially at the base of the brain, with this phenomenon of digestion of the fundal part of the stomach during the last hours of life and immediately after death.

There is no explanation of the blood in the sputum. There are no lesions or scars in the lungs such as are usually associated with a bloody sputum and a sputum of the character described. It might have been a transient bronchitis. The tuberculous lesion in the lung was not the type associated with those signs and symptoms.

CASE 72

PRESENTATION OF CASE

A 47 year old married grocer entered Barnes Hospital on January 12 and died January 17, 1945.

Chief Complaints.—Shortness of breath and swelling of the abdomen.

Family History.—No history of cancer, tuberculosis or diabetes.

Past History.—The patient had had influenza, tonsillitis, malaria and gonorrhea but the dates of these diseases were not ascertained. He apparently had been well until the onset of the present illness with the exception of an elevated blood pressure known to have been present for several years. Systemic history indicates that the patient had a dry cough preceding the present illness, and had hemorrhoids and occasional rectal bleeding. He had always been nervous and excitable and easily fatigued.

Present Illness.—The patient had some shortness of breath on exertion for several years, although he was a heavy man with an average weight of 200 pounds. About six months previous to admission he began to have abdominal distress with bloating occurring particularly after meals. His abdomen slowly increased in size and for this he entered a diagnostic clinic in Kansas City.

A report of his records there indicate that other than a pulse rate of 110, a blood pressure of 160/90 and obesity, there were no critical findings. There was dulness in both flanks of the abdomen with a suggestive fluid wave. The blood count revealed the red cells to be 4,870,000, hemoglobin 89 per cent, white blood cells 6,200. No differential count was recorded. Nonprotein nitrogen was 34 mgms. per cent, sugar 118 mgms. per cent. The electrocardiogram was normal and the basal metabolic rate was minus 12 per cent. Roentgenograms of the gallbladder and gastrointestinal tract revealed only an irritable colon. The patient was discharged with the impression that the only significant findings were obesity and slightly elevated blood pressure and most of his symptoms were considered to be functional.

After the patient returned home, shortness of breath on exertion increased decidedly as did bloating and enlargement of the abdomen. A fever as high as 104 F. developed and lasted for about one week. He entered a local hospital where he was given a few doses of penicillin and a course of sulfa drugs. On this treatment his temperature returned to normal. The laboratory report of his second hospital admission, brought with him, revealed normal red blood cell and white blood cell counts with a differential count of 80 polymorphonuclear neutrophils. A few days after admission the red cells had fallen to 3,100,000 and the white cells were 12,200 with 96 polymorphonuclear forms. Gastric analysis produced normal appearing material which was alkaline in reaction. The patient apparently became exhausted and was given a transfusion of about one quart of blood. Shortly thereafter his respiratory embarrassment became very much worse and he was brought 300 miles to Barnes Hospital.

Physical Examination.—Temperature was 37.3 C., pulse 120, respirations 26, blood pressure 122/90. The patient appeared acutely ill. He was sitting upright in bed. His skin was pale and his face beaded with perspiration. Respirations were short, shallow and rapid. There was slight cyanosis of the lips and nail beds. The conjunctivae were injected. The pupils reacted normally. The fundi showed marked A-V nicking and slight haziness of the edges of the discs. No hemorrhages or exudate were noted. The mouth was edentulous. The tonsils were missing. The trachea was in the midline. Respiratory excursions were shallow but equal. Percussion revealed dulness bilaterally extending upward to the angle of the scapula. Here the spoken and whispered voice sounds were increased. Rales appeared bilaterally above the areas of dulness. The heart appeared enlarged to the left of the anterior axillary line with the apex in the fifth or sixth intercostal space. The rate was rapid and the rhythm revealed a definite gallop. There were no murmurs and the sounds were moderately loud. The abdomen was protuberant. The liver was felt about three finger breadths below the right costal margin. Dulness in the flanks and a slight fluid wave were detected in the abdomen, and edema was present over the sacral area.

Laboratory Findings.—Blood count: red cells 4,800,000, hemoglobin 11.9 gms., white cells 8,350, differential count: stab forms 64 per cent, segmented forms 33 per cent, lymphocytes 1 per cent, monocytes 1 per cent. Urinalysis: albumin, numerous coarsely granular casts. Blood chemistry: sugar 106 mgms. per cent, nonprotein nitrogen 33 mgms. per cent; total proteins 4.9 gms. per cent, albumin 2.8, globulin 2.1, calcium 8.0 mgms. per cent, phosphorus 4.0 mgms. per cent, alkaline phosphatase 12 Bodanski units, acid phosphatase 0.8 units, Kahn reaction negative. Venous pressure was 185 mm. H_2O. Prothrombin time was 90 per cent of normal, clotting time 6½ minutes, bleeding time 16 minutes. Roentgenograms of the chest showed considerable enlargement of the cardiac silhouette, a lengthened aorta and considerable infiltration along the perihilar region on the two sides. There appeared to be some fluid in both pleural cavities. A diagnosis of cardiac enlargement, cardiac decompensation and aortic lengthening was made. Electrocardiogram showed T waves

isoelectric in leads 1 and 3, diphasic in leads 2 and CF-2, inverted in CF-4. Slurring of the complexes was present. Interpretation was myocardial damage of the coronary type with left axis deviation.

Course in Hospital.—On the day following admission many purpuric spots appeared over the upper abdomen and around each axilla. On hematologic consultation the following values were reported: blood count, red cells 3,980,000, hemoglobin 9.5 gms., white cells 6,050, differential count; juvenile forms 7 per cent, stab forms 61 per cent, segmented forms 28 per cent, lymphocytes 1 per cent, monocytes 3 per cent, platelets 23,800, reticulocytes 5.7 per cent. Occasional toxic granulation was observed in the leukocytes. The sternal bone marrow revealed eosinophils 1 per cent, B myelocytes 18 per cent, C 6 per cent, metamyelocytes 21 per cent, band forms 10 per cent, segmented forms 3 per cent, phagocytic clasmatocyte 1 per cent, primitive cells 16 per cent, plasma cells 23 per cent, normoblasts 81 per cent, erythroblasts 15 per cent. There were large clumps of marrow which seemed normally cellular. Some of the myelocytes were deficient in granules and some showed toxic granulation. Megakaryocytes were infrequent but were present. On the day following admission, a thoracentesis was done on the left chest and 1,000 cc. of grossly bloody fluid were recovered. This fluid quickly clotted upon standing. Culture from this fluid revealed no growth. A similar tap was attempted on the right chest the following day and only a small amount of blood, which clotted readily, was recovered. The following day the abdomen was tapped and 500 cc. of bloody fluid were obtained with difficulty. This fluid also clotted rapidly on standing. Other attempts to secure abdominal fluid apparently were unsuccessful. The blood culture was sterile. The patient was given digitalis and supportive measures, but he rapidly failed, his extremities became cold and cyanotic, respirations increased and he failed to respond to emergency treatment. During the five days' residence in the hospital, the pulse rate ranged between 110 and 140. During the last two days his temperature rose to about 38 C.

CLINICAL DISCUSSION

Dr. W. Barry Wood, Jr.: This case presents a difficult diagnostic problem. There were three phases of the patient's illness which should be discussed: First, the symptoms and signs that suggest cardiac failure; second, the purpuric eruption; and third, the bilateral sanguinous pleural effusion and ascites. It might be well to call on the cardiologists first to tell us if they think this patient was in congestive heart failure. Dr. Smith, do you believe that this patient was in congestive heart failure at any time during his stay in the hospital?

Dr. John Smith: There were certain signs and symptoms suggestive of cardiac impairment. One important sign was the enlargement of the heart. There was a gallop rhythm. Among the symptoms there were dyspnea, orthopnea, cyanosis and some edema. The enlargement of the liver also could be related. There was splenomegaly as well. The venous pressure was elevated to some extent. Later, the electrocardiogram showed some changes suggesting myocardial damage and there were signs of fluid in the pleural and peritoneal spaces. I do not recall anything about edema of the lower extremities at that time.

Dr. Wood: Those are all cardinal signs and symptoms of congestive heart failure, both right and left sided. Is there any doubt in your mind that this patient had cardiac disease, Dr. Smith?

Dr. Smith: A better description would be "cardiac impairment." It may represent myocardial disease, or it may represent mechanical interference with myocardial action.

Dr. Wood: Was this patient in heart failure, Dr. Smith?

Dr. Smith: Yes, I think so.

Dr. Wood: Do you agree with that, Dr. Massie?

Dr. Edward Massie: I saw the patient the night of admission and I was sure that it was entirely a case of heart failure.

Dr. Wood: Why was the patient in congestive heart failure, Dr. Smith?

Dr. Smith: That is a difficult question. The record shows hypertension. The first blood pressure record was 160/90 which is not, properly speaking, a hypertension. It simply means that the pulse pressure was a little elevated. Later there was a blood pressure of 122/90 which would fall within the range of normal blood pressure. Another change in the electrocardiogram noted later was of the type seen in coronary arterial disease. That may indicate that he had primary disease of the coronary artery. It is certainly difficult to rule out. That type of electrocardiographic change may occur, however, in the course of heart failure and it certainly may occur in the course of pericarditis which has produced heart failure.

Dr. Wood: The nonprotein nitrogen was elevated to 33, I believe. Does that help you?

Dr. Smith: It was somewhat elevated and there was albumin in the urine, but there was a depression of the albumin fraction in the serum protein.

Dr. Wood: Dr. Smith, can one tell anything about the cause of heart failure by looking at a radiograph?

Dr. Smith: In certain instances, yes. Particularly when the cardiac silhouette is characteristic, as in mitral stenosis or congenital malformations or in the very boot-shaped heart that is seen in syphilitic heart disease. Hypertensive heart disease frequently gives a rounded cardiac silhouette. The cardiac silhouette in this patient was not distinctive.

Dr. Wood: Dr. Bottom, is the heart boot-shaped in this case?

Dr. Donald Bottom: There is a suggestion that it is boot-shaped. There is quite a concavity along the left side.

Dr. Wood: What causes a heart to be boot-shaped, Dr. Smith?

Dr. Smith: It is seen most frequently in aortic regurgitation.

Dr. Wood: This patient had no aortic regurgitation. With the elimination of this possibility could it be hypertension?

Dr. Smith: It could be hypertensive heart disease. The fact that a normal blood pressure was recorded does not necessarily mean anything, particularly when the patient was so ill. Hypertensive heart disease is a definite possibility.

Dr. Wood: And the shape of the heart on radiograph is suggestive that this is left ventricular hypertrophy predominantly, which fits in with hypertension. Dr. Massie, do you agree with this interpretation?

Dr. Massies Yes.

Dr. Wood: Then you think this patient had hypertensive cardiovascular disease with congestive heart failure on the basis of hypertension?

Dr. Massie: Yes. On admission the patient was in shock which would explain a temporary reduction in blood pressure.

Dr. Smith: One other suggestion should be made. In the presence of cardiac enlargement and fluid in the abdomen and pleural cavities and elevated venous pres-

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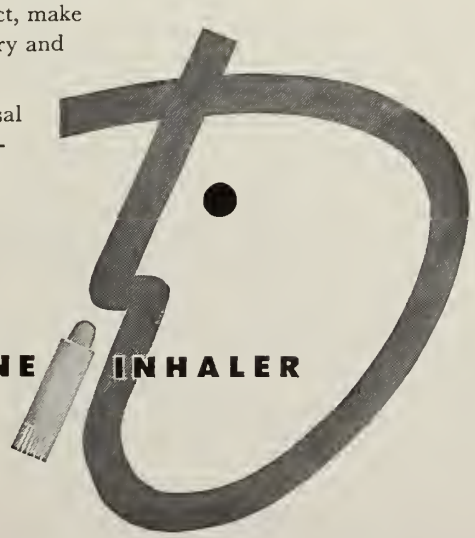
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sure, the question always comes up as to whether or not this might be a pericarditis.

Dr. Wood: Dr. Smith, what kind of pericarditis? Adhesive or constrictive?

Dr. Smith: Adhesive pericarditis.

Dr. Wood: What is the difference between the two?

Dr. Smith: In adhesive pericarditis there are adhesions between the parietal pericardium and the mediastinum. A constrictive pericarditis has the same sort of lesion except that the constrictive action on the myocardium is more pronounced. The heart is smaller in constrictive pericarditis than in adhesive pericarditis in which it may attain considerable size.

Dr. Wood: Dr. Massie, did you find any signs suggestive of adhesive pericarditis?

Dr. Massie: We were watchful for signs of adhesive pericarditis but did not find any. We also thought of constrictive pericarditis but the patient was too ill to study with the fluoroscope. His pulse pressure in subsequent readings was not small. I did not consider constrictive pericarditis because other findings later ruled out that possibility. If it was present, it was an insignificant part of the picture.

Dr. Wood: Dr. Smith, between these two possibilities —hypertension and pericarditis—which would you favor?

Dr. Smith: Hypertension.

Dr. Wood: Dr. Taussig, do you agree?

Dr. Barrett Taussig: Yes, perhaps with an arteriosclerotic factor. It is interesting that the patient had a normal electrocardiogram six months before admission.

Student: Did the patient have changes in the eyegrounds compatible with the hypertensive heart disease?

Dr. Wood: That is a good point. He had AV compression in his eyegrounds which would be in favor of hypertensive heart disease. He had those even when his blood pressure was relatively normal. The next point for discussion is the purpuric eruption the patient had. Dr. Moore, what was the cause of this hemorrhagic rash that was described over the patient's abdomen and in the axillary region?

Dr. Carl V. Moore: I think it was related definitely to the thrombocytopenia.

Dr. Wood: Yes, the platelet count was only 23,000. Was there any other blood finding that went with that, Dr. Moore?

Dr. Carl V. Moore: The prolonged bleeding time, Dr. Wood.

Dr. Wood: The bleeding time was sixteen minutes. Those two factors go together. So you think this was a form of thrombocytopenic purpura. Why was the platelet count low?

Dr. Carl V. Moore: I think it was low in this instance because the bone marrow was not making platelets at the normally rapid rate. There were megakaryocytes present but in reduced numbers. This could be caused by a number of things. Toxic damage to platelets from drugs like benzol and heavy metals, hypersensitivity reaction to drugs is not unlikely, and a certain number of infections could be responsible.

Dr. Wood: There is no history of any drug intoxication in this case. What do you mean by hypersensitivity reaction to drugs, Dr. Moore?

Dr. Carl V. Moore: I mean the kind of thrombocytopenia which develops after sedormid, which is a hypersensitivity rather than a direct toxic reaction.

Dr. Wood: This patient had never taken sedormid so that is ruled out. You have mentioned "certain infections." Do you care to name any of those, Dr. Moore?

Dr. Carl V. Moore: In terms of statistical frequency, tuberculosis would head the list. However, any acute infection such as scarlet fever may cause thrombocytopenia, any type of bacteremia or septicemia, acute bacterial infections, possibly the rickettsial diseases, especially Rocky Mountain spotted fever. In addition there is any space filling lesion of the bone marrow, as in leukemia, carcinoma or certain lymphomata, and myelosclerosis, which is rare. Idiopathic thrombocytopenic purpura should be listed although the picture in this case is entirely different.

Dr. Wood: Dr. Moore, what about the nonprotein nitrogen being 33 mgms. per cent? Would that have anything to do with the platelets being 23,800 or the bleeding time 16 minutes?

Dr. Carl V. Moore: Frequently in uremia one finds purpura with an elevated bleeding time but not often with a low platelet count. The abnormal bleeding in uremia is the result of capillary damage primarily and the nonprotein nitrogen must be elevated much more than in this instance.

Dr. Wood: Dr. Reinhard, do you have any other suggestions as to the cause of the patient's purpura?

Dr. Edward Reinhard: I think an infection is the cause and tuberculosis would be the most likely. I feel it is an infection because of the rapid course of the disease. He had fever and a toxic condition with marked toxic granulation of the white cells.

Dr. Wood: There was an interesting finding in the bone marrow of this patient. There were 23 per cent plasma cells. Dr. Reinhard, what does that mean?

Dr. Reinhold: Anything above 2 per cent plasma cells in the bone marrow is considered abnormal and when the count is above 20 per cent it is most significant. Certainly the majority of patients who have over 20 per cent plasma cells in the bone marrow have multiple myeloma. The course and other findings rule that out rather definitely. There is a small number of cases with this high plasma cell count in the bone marrow in which other lesions have produced this condition. Among those, primarily, are the granulomatous infections like tuberculosis, sarcoid, Hodgkins' disease and leprosy. Tuberculosis would be the most likely.

Dr. Wood: Do you agree with that interpretation, Dr. Moore?

Dr. Carl V. Moore: Yes, I do.

Dr. Wood: Then, on the basis of the purpura and the high plasma cell count, Dr. Reinhard has suggested a granulomatous infection, namely, tuberculosis. Dr. Massie, do you accept that?

Dr. Massie: I accept anything from the hematologists because I know so little about it.

Dr. Wood: Dr. Harford, do you agree with this diagnosis?

Dr. Carl Harford: In reading over the history I was not impressed with the fever.

Dr. Wood: Nor was I. The patient had fever for a week and it responded to sulfonamide therapy and penicillin and the patient had no more fever until two days before death. That febrile course does not sound like tuberculosis to you, does it?

Dr. Harford: No, it does not.

Dr. Wood: Then, some other cause for the fever will have to be postulated. If it is not tuberculosis there must be some other cause why the temperature went to 104 and responded to chemotherapy.

Dr. Massie: That is correct. The patient had little fever while in the hospital and none while attending the clinic.

Dr. Wood: Dr. Reinhard, will you withdraw your diagnosis on that basis? Could the patent die of tuberculosis without any fever?

Dr. Reinhard: Yes, it is possible.

Dr. Wood: We will need Dr. Goldman's help on the third phase of this patient's illness—the bloody pleural effusion and the ascites with bloody fluid. Dr. Goldman, what are the common causes of bloody pleural effusion?

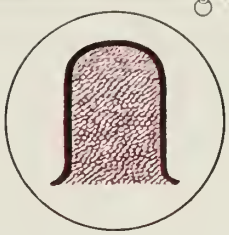
Dr. Alfred Goldman: Trauma would come first in the list of causes. However, there is no history of

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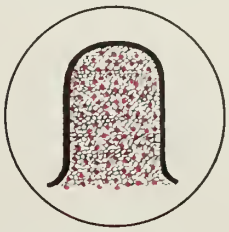
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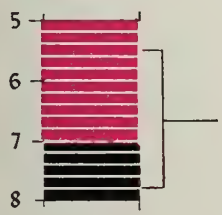




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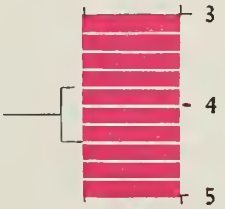
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RESEARCH IN THE SERVICE OF MEDICINE

trauma in this case. Also one must distinguish between a hemothorax and a pleural effusion. If you take all of the causes for both of these conditions, an important cause would be rupture of an aneurysm, or a rupture of an intercostal vessel. Those would be related to hemothorax.

Dr. Wood: From the description of this case do you feel this was a hemothorax or bloody pleural effusion?

Dr. Goldman: It is close to being a hemothorax—it clotted immediately. However, that does not rule out a bloody pleural effusion. This must be seriously considered, depending on how much blood there was in the effusion. The most common cause of a bloody pleural effusion would be a malignancy. In a study of a series of cases, approximately 65 per cent must be considered as malignant, about half primary in the lung, and half metastatic.

Dr. Carl V. Moore: I believe the reason the sternal aspiration was requested in this case was the suspicion that carcinoma cells might be found in the bone marrow. I do not believe it was requested because an infection was suspected.

Dr. Wood: I think this discussion illustrates how valuable the bone marrow is in making a diagnosis in disease other than hematologic disease. Dr. Goldman, are there any other causes you wish to mention besides carcinoma?

Dr. Goldman: Inflammatory processes in general are important: for example, bronchopneumonia, lung abscess, and other acute inflammations. Then there is tuberculosis, which is not as common as one would expect.

Dr. Wood: That is true. In most textbooks tuberculosis is listed as the most common cause of bloody pleural effusion but that is probably incorrect. Carcinoma is certainly more common.

Dr. Goldman: Pulmonary emboli are another common cause.

Dr. Wood: This patient also had ascitic fluid that was bloody. What are the common causes of bloody ascitic fluid, Dr. Goldman?

Dr. Goldman: Carcinoma would be first. Tuberculosis would be a minor cause.

Dr. Wood: Do you agree with that, Dr. Scheff?

Dr. Harold Scheff: Yes, I do. However, I was wondering whether or not the thrombocytopenic purpura could have caused the hemothorax and hemoperitoneum?

Dr. Wood: That is a good point. The bleeding into the peritoneal cavity and the pleural cavity may have been a purpuric manifestation.

Dr. Carl V. Moore: As a cause only for the fact that it was bloody, not for the presence of the effusion.

Dr. Wood: That is correct. Not for the presence of the effusion but for the presence of the blood in the effusion. There must have been some other underlying disease that caused the effusion. Of all these possibilities, Dr. Goldman, which one do you favor?

Dr. Goldman: Carcinoma. However the evidence for neither carcinoma nor tuberculosis is good. I was not impressed by the febrile course.

Dr. Massie: Dr. Wood, I would like to offer a correction concerning the febrile course. The patient did have fever for a week shortly before the second admission to the local hospital near his home, and the temperature did drop to normal after chemotherapy. However, he developed fever up to 103 F. again which lasted for several weeks before his admission to Barnes. There were approximately four weeks of fever in the history.

Dr. Wood: Dr. Goldman, on the basis of this new evidence do you wish to change your decision?

Dr. Goldman: No, I will stay with the carcinoma. The only way we could explain the bloody effusion, if it were due to an inflammation such as tuberculosis, would be on the basis of an effusion plus purpura. I have never seen grossly bloody fluid in a tuberculous effusion of this sort. I have seen grossly bloody fluid but it did not coagulate and it was distinctly an effusion.

Dr. Wood: The discussion so far has given us two possibilities—tuberculosis and carcinoma—but neither seem to have anything to do with the first subject discussed, namely, the heart failure. Dr. Smith, how do you connect these two diagnoses with the fact that this patient had heart failure?

Dr. Smith: If this patient had tuberculosis, it would give one more courage to consider the diagnosis of chronic pericarditis. However, hypertension is so common as a cause of heart disease that it is possible that hypertensive heart disease existed in this case.

Dr. Wood: Could the electrocardiographic changes be due to pericarditis and not coronary disease?

Dr. Smith: They could be produced by a pericarditis, impairing myocardial function.

Dr. Wood: Would you be willing to champion that diagnosis? That the whole thing is tuberculous pericarditis, failure on the basis of adhesive pericarditis, and active tuberculosis in the pleural cavity and peritoneal cavity?

Dr. Smith: I think I would favor pericarditis?

Dr. Wood: Dr. Goldman, do you agree with Dr. Smith on that or do you favor two separate diagnoses?

Dr. Goldman: I still favor carcinoma. I would diagnose hypertensive heart disease with carcinoma.

Dr. Wood: Dr. Massie, do you have any other suggestions?

Dr. Massie: Many of the symptoms in this patient could be observed in one who is ill with either tuberculosis or carcinoma, and who does not have much cardiac failure. The picture that this man presented was so typical of severe cardiac failure that we were sure we would get results by the next morning but all therapy failed. I wonder whether we have much of an element of cardiac failure per se. He had ascites, pleural fluid, an enlarged liver, dyspnea, orthopnea with fluid in both pleural cavities. He was in shock, therefore cyanotic. He had edema over the sacrum.

Dr. Wood: But there is one sign which cannot be explained—the gallop rhythm.

Dr. Massie: That was present only when he was in shock.

Dr. Wood: Is it usual for a gallop rhythm to occur in shock?

Dr. Massie: It is possible.

Dr. Wood: Do you accept that, Dr. Smith?

Dr. Smith: Yes, it can occur in shock.

Dr. Wood: You have raised a good point. We cannot be sure this patient was in heart failure. In that case we perhaps should focus our attention on the other two possibilities.

Dr. Scheff: Dr. Wood, what about the elevated alkaline phosphate?

Dr. Wood: Dr. Moore, does that have any significance?

Dr. Carl V. Moore: It might mean that there was increased osteoplastic activity in the bone marrow. I am not certain how to interpret it. I doubt that it had much to do with disease of the liver.

Dr. Scheff: Where would the primary site of the carcinoma be, if this is carcinoma?

Dr. Goldman: I would favor a metastatic tumor to the lung. It is certainly metastatic in the pleura.

Dr. Wood: Do you accept that, Dr. Scheff?

Dr. Scheff: Yes.

ANATOMIC DIAGNOSIS

Focal calcification of the upper lobe of the right lung.

Caseous tuberculosis of the bronchopulmonary, tracheobronchial and portahepatic lymph nodes.

Fibrous scars at the apices of the lungs.

Tubercles in the mesenteric, periaortic and peripancreatic lymph nodes.

Tuberculous peritonitis.

Miliary tuberculosis of the kidneys, spleen, liver, lungs and adrenals.

Arteriolar nephrosclerosis, slight.

Hypertrophy and dilatation of the heart (400 grams).

Hydrothorax (right 200 cc., left 350 cc.).

Thrombi in a tertiary branch of the pulmonary artery.

Infarct of the lower lobe of the left lung.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: In a section of the capsule of the spleen, showing the character of the exudate, it was seen to be thick and necrotic, with few living cells. It was made up of caseous material and numerous karyorrhectic nuclei, with no evidence of organization at the base.

In a section of one of the tracheobronchial lymph nodes there were a small amount of lymphoid tissue and large confluent foci of necrosis. The necrosis was not typically caseous, but rather a type of acute necrotizing lesion caused by the tubercle bacillus.

In another section of the spleen the character of the so-called miliary tubercles of the spleen was seen. They were represented by foci of necrosis which were not immediately recognized as caused by the tubercle bacillus because there were no giant cells, no epithelioid cells, and no formation of the typical granulomas. The miliary tubercles in all the viscera, including the bone marrow, were of this character. There were immense numbers of tubercle bacilli in the lesions.

It is our belief that this patient did suffer from two principal diseases—tuberculosis and cardiovascular renal disease. The reason for accepting the diagnosis of cardiovascular renal disease was the finding of arteriolar nephrosclerosis of the kidneys, hypertrophy and dilatation of the heart, which weighed 400 grams, congestion and edema of the lungs, hydrothorax (we interpreted the accumulation of fluid in the pleural cavities as the result of passive congestion rather than as an exudate), chronic passive congestion of the liver, spleen and kidneys, and the finding of thrombi in the tertiary branches of the pulmonary artery with an infarct of the lower lobe of the right lung. That is the typical picture that one sees in a patient who has enlargement of the heart in association with vascular disease in which that heart has failed.

The diagnosis of tuberculosis must be accepted because of the finding of acid-fast bacilli in huge numbers. There are two points that may be of interest. First, concerning the pathogenesis of the tuberculosis: The patient had a calcified nodule in the upper lobe of the right lung, and he had caseous tuberculosis of the tracheobronchial lymph nodes, indicating that he had at some time suffered from a first infection type of tuberculosis. In addition he had scars at the apices of both lungs indicating that he had suffered from reinfection tuberculosis. He also had caseous tuberculosis of the porta hepatic lymph nodes and tuberculous peritonitis and miliary tuberculosis throughout the body. Whether or not this represents a progressive tuberculosis, whether the tuberculous peritonitis resulted from the first infection lesion through the blood stream, or from a rupture of the caseous lymph node about the porta hepatic region or in the mesentery cannot be determined at this time. Both possibilities are acceptable. The second point is the character of the tuberculosis, the extreme necrosis, and the huge numbers of tubercle bacilli. There are some who accept the idea that this type of lesion represents an advanced tuberculosis in a patient who has no sensitivity and no resistance whatever to the disease. The tubercle bacillus takes on the character, then, of many other organisms producing necrosis of the tissue with little response on the part of the tissue.

THE BARNARD FREE SKIN AND CANCER HOSPITAL

RESEARCH REPORT FOR 1944

E. V. COWDRY

ST. LOUIS

BARNARD LECTURE

Every year the Barnard Hospital brings to St. Louis an acknowledged leader in cancer research who delivers the Annual Barnard Hospital lecture at the St. Louis Medical Society. Last year it was Dr. R. R. Spencer, Chief of the National Cancer Institute, who spoke on "The Problems of Cancer Biology" and whose address has been published in the *Journal of the American Medical Association*. His account is of value to the whole medical profession.

SURGICAL CLINICS OF NORTH AMERICA

During 1944 the research activities of members of the staff have been more fully expressed than ever before. This is because W. B. Saunders and Co. of Philadelphia offered to devote an entire number of the *Surgical Clinics of North America* to cancer research in Barnard Hospital. Dr. Seelig served as editor and quickly found that thirty members of the staff had important results to report. Even those in active service, but still in this country, were inspired by him and, having obtained permission from their superior officers, helped to give in twenty-seven chapters a comprehensive picture of the contribution of Barnard Hospital toward the practice of medicine as far as cancer is concerned. Practical experience in many lines of diagnosis and treatment is described. Thus, the points to be considered in a differential diagnosis between mycotic granulomas and malignant lesions are mentioned. The advantages of the examination of cutaneous lesions in ultraviolet light which reveals their distinctive fluorescence are presented. Considerations to be observed in obtaining optimum roentgen-ray and radium effects are illustrated graphically. The fundamentals of hormonal treatment of certain cancers are presented and the best known surgical management of cancers in many parts of the body is discussed.

TALCUM HAZARD IN SURGERY

Inspired search by Seelig and his associates for a substitute for talcum as a dusting powder for surgeons gloves has been crowned with success. The reason why talcum is so objectionable is that some of it may escape through a nick in a glove into the wound. In the peritoneal cavity talcum, thus introduced, acts as a highly irritating foreign body and can produce adhesions and widespread granulomata, the latter not infrequently mistaken for miliary tuberculosis. An analysis of the literature and examination of specimens showed that many patients suffer lasting injury from talcum. Obviously the substitute had to be a smooth powder which was both nonirritating and easily dis-

posed of by the tissues. After the placing of a wide variety of powders into the peritoneal cavities of rats the bi-tartarate of potassium and starch were both found to have these properties; but the tartarate was alkaline and hard on the gloves, while, when the starch was autoclaved it gelled into a firm mass. On the insistence of Seelig the Corn Products Corporation has devised a method of manufacturing a starch which does not undergo this change when sterilized with the gloves and which is in fact an ideal substitute for talcum—a discovery of great consequence as has been emphasized in an editorial in *The Journal of the American Medical Association.*

As in previous years, advances have been made in dermatology not only in relation to cancer of the skin, which is the major research project of the hospital, but also in respect to other conditions. For example, Morris Moore has written on diseases caused by yeasts and fungi and Weiss and Conrad have contributed a chapter on the skin in a volume entitled "Clinical Nursing in Medicine." Detailed investigations on neurodermatitis, by MacCardle and the Drs. Engman, mentioned in last year's report, have been interrupted by the war; but plans have been made for continuation along new lines.

PROPERTIES OF PRECANCEROUS LESIONS

The major project, described in some detail in previous reports, for it has already been carried through seven years, is to discover the changes that take place in mouse epidermis as cancer develops when methylcholanthrene dissolved in benzene is applied to the surface.

Before 1944 it had been discovered that a new chemical equilibrium is promptly established in the reacting hyperplastic epidermis. Conditions of epidermal cell life must be altered profoundly because epidermal iron, calcium and lipid are reduced about 50 per cent; while sodium, potassium and ascorbic acid remain unaltered and magnesium is increased slightly. The cells are larger, but their nucleocytoplasmic ratios are decreased. Their mineral residue after microincineration is decreased, especially in the spinous layer. The frequency of mitosis is increased and some of the metaphases exhibit marked chromosome abnormalities. Nuclear thymonucleic acid is decreased and the displaceability of nuclear contents subjected to ultracentrifugal force is increased.

During 1944 the characteristics of this new equilibrium have been investigated further. It has been found by Wicks and Suntzeff that the mg. cholesterol gm. protein ratio is decreased almost 50 per cent. Biesele has observed that, as the new equilibrium is established, there is a striking increase in the epidermal cytoplasmic content of ribonucleic acid which begins as early as twelve hours after a single application of methylcholanthrene, attains a maximum from the third to the tenth day after which it decreases.

Bioassay of members of the B complex of vitamins in epidermis in the new equilibrium has been commenced under the most favorable auspices. By a stroke of good fortune it has been possible to arrange for Dr. E. L. Tatum of Stanford University, a leader in this line of inquiry, to work at Barnard Hospital for several months and personally to cooperate with Drs. Ritchey and Cowdry in this investigation. This is the second time that Stanford University has teamed up with Barnard Hospital. The first was the visit of Dr. P. J. Baumberger, the University's Professor of Physiology, which resulted in the discovery of a method for separating epidermis from dermis in a condition suitable for chemical analysis.

The way has now been opened to more precise analysis of the reacting epidermis by which pure nuclei, keratin and cytoplasm minus keratin can be collected en masse. Heretofore all the chemical analyses have been made of whole epidermis.

CHEMICAL ANALYSES OF CANCER

But to carry these analyses from the hyperplastic epidermis, while in this new equilibrium, into the actual cancerous tissue has necessitated a radical change in technic. It is obviously not feasible to analyse the first cells that break loose from the epidermis, invade the dermis and in so doing display malignant behavior. Progress has been made possible by the success of Cooper, Firminger and Reller in producing several strains of transplantable squamous cell carcinoma resulting from treatment of epidermis with methylcholanthrene. One of these behaves with great constancy in subcutaneous transplant after transplant and has provided an abundance of material. It is necessary, however, to select for analysis very small tumors showing little keratinization and in which necrosis is minimal and to make corrections for blood which was absent in avascular hyperplastic epidermises.

In these cancers the ascorbic acid content has been found by Carruthers and Suntzeff to be approximately the same as that of the hyperplastic epidermis in the new equilibrium, whereas, potassium, magnesium, calcium and sodium were slightly decreased. The amount of iron determined by analysis remained about the same but a decrease in iron is expected in the actual malignant tissue because some iron is intravascular.

HYPERSENSITIVITY TO CARCINOGENS

When the methylcholanthrene is applied to mouse's skin not in benzene but in lanolin, Simpson and Cramer have observed that cancer does not result. But this carcinogenetically inactive methylcholanthrene does increase the sensitivity of the epidermis. There is a great increase in the incidence of cancer and a marked shortening of the period of induction of cancer when active methylcholanthrene (in benzene) is applied to the sensitized skin. The sensitization is not accompanied by the usual decrease in calcium and iron (Simpson,



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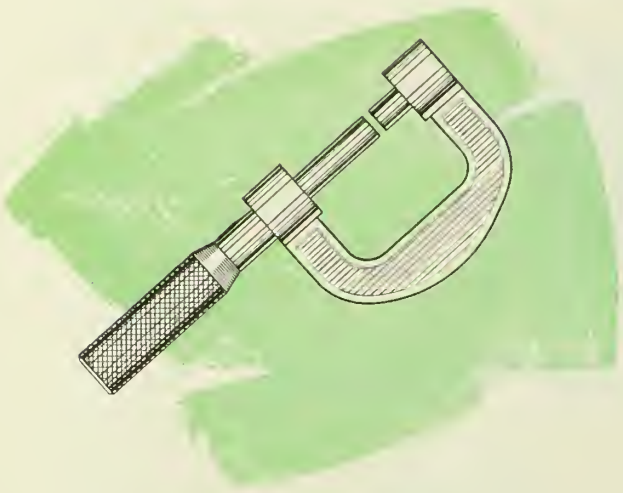
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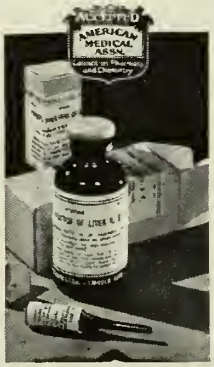
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Carruthers and Cramer) so that evidence of the new equilibrium, which precedes cancer, is lacking.

INFLUENCE OF AGE ON CARCINOGENESIS

That age is a factor in mice has been demonstrated by Cowdry and Suntzeff who found that in a large series more cancers develop more quickly in young mice of the New Buffalo strain than in old ones of the same strain similarly treated with carcinogen. A strain, or hereditary difference, also emerges because young CBA mice were observed to be much more resistant to this carcinogen than young New Buffalo mice. Analyses are now under way (with the help of Carruthers) to ascertain whether these age and strain differences are coincident with differences in the composition of the epidermis.

INFLUENCE OF RADIOACTIVE ISOTOPES

During 1944 the services of the Washington University cyclotron, previously devoted exelusively to war activities, have been made available for cancer research. Womack and Simoes (a visiting physician from Brazil) have commeneed quantitative measurements of the intake of diffusible radiophosphorus by mouse epidermis during methylcholanthrene careinogenesis; while Womack and Cooper are testing the influence of particulate radiophosphorus on the transplantable carcinoma already mentioned.

PLANS FOR RESEARCH

Evidently in the major cancer research project more and more quantitative data are being assembled on changes provoked by methylcholanthrene in epidermis before the actual cancers appear. It is proposed to continue this analysis for several years longer because the more basic facts there are to integrate, the clearer becomes the picture of what happens, and much remains to be done.

In doing this, chemical alterations, such as depression in calcium and iron, are identified, the prevention of which might interfere with the malignant transformation. Faetors also become apparent which accelerate this particular form of carcinogenesis, like dosage with estradiol benzoate (previously reported) and which retard it, like advanced age. Consequently experience is being gained which will be useful when the major projeet is advanced to the second level of attempting to inhibit eancer production after a earcinogenic impulse has been delivered which otherwise would be effective.

The foundations for work at the third level are being laid gradually. These consist of data concerning the ehemical and other properties of the resulting eaneers. It is hoped that an interpretation of these findings will yield clues to the specific vulnerability of the eancers and thus to improvements in treatment.

What binds the research together at all levels is that it deals with the same carcinogen, the same tis-

sue and the same resulting cancer. The integration is, in a sense, vertical.

RESEARCH POLICY

It is important to make known not only what is being done and is hoped to accomplish but the policy under which the hospital operates.

The first decision was to concentrate on the previously described major project in cancer research. One of several reasons for selecting it was that in research on skin cancer one also would be working in the field of dermatology, which Barnard Hospital, inspired mainly by Dr. M. F. Engman, Sr., has done so much to advance. Much of the information gained obviously would contribute to knowledge of chemistry and physiology of the skin.

The next decision was financial. Seven years ago the hospital made available $91,378.57 of capital funds for research. This seemed a lot of money but no more was in sight. The safe way of security would have been to use only the interest, but this would have provided somewhat less than $4,000 a year for research. Consequently with the approval of the directors, the more daring policy was adopted of spending this sum as seemed best although its exhaustion might mark the discontinuation of research in Barnard Hospital. This was a courageous action on the part of those who experienced, a few years earlier, the frustration consequent upon the complete stoppage of research for lack of financial support.

How to budget this sum had then to be decided. Acting in the belief that if worthwhile results could be produced in five years, it might be possible to obtain further subsidy, perhaps for another period of five years, it was planned to spend $15,000 the first year and $20,000 in each of the following years. While proceeding on this basis, however, it was evidently the part of wisdom to try to secure supplementary financial support in order, if possible, to achieve larger annual budgets and to extend the life of the project beyond five years. In doing this two handicaps at once became apparent. The first is that Barnard Hospital is unique among cancer hospitals in the United States in being absolutely free. That is, it cannot charge patients even the nominal fee exacted by most "free" clinics. Because only indigent patients can be accepted, Barnard Hospital, unlike all other private hospitals in St. Louis, is practically unknown among those who could contribute financially to its research or clinical activities. Such persons never receive treatment in the hospital, neither do they visit their friends in the hospital for their friends do not belong in the class of indigents.

The second is that, while the United Charities and its successor the War Chest grants a subsidy to partly defray the cost of treatment of indigents, in terms of the agreement the hospital cannot solicit financial aid in St. Louis. Though the aid must go exclusively for treatment, not for research designed to improve treatment, the prohibition against asking for research funds also holds.

Despite these difficulties small amounts of money have been given to the hospital in St. Louis and much larger amounts have been raised outside St. Louis for which latter help the hospital can apply. Altogether, in seven years $139,518.32 has been raised and spent. This has permitted larger annual budgets than expected and has reduced withdrawals from the capital fund to an average of $10,928.56 a year. With $19,641.00 remaining in this fund on February 15, 1945, and similar outside collections, it will be possible to continue to December 31, 1946, which will be stretching the project from five to nine years and increasing the annual budget from $20,000 to $30,000.

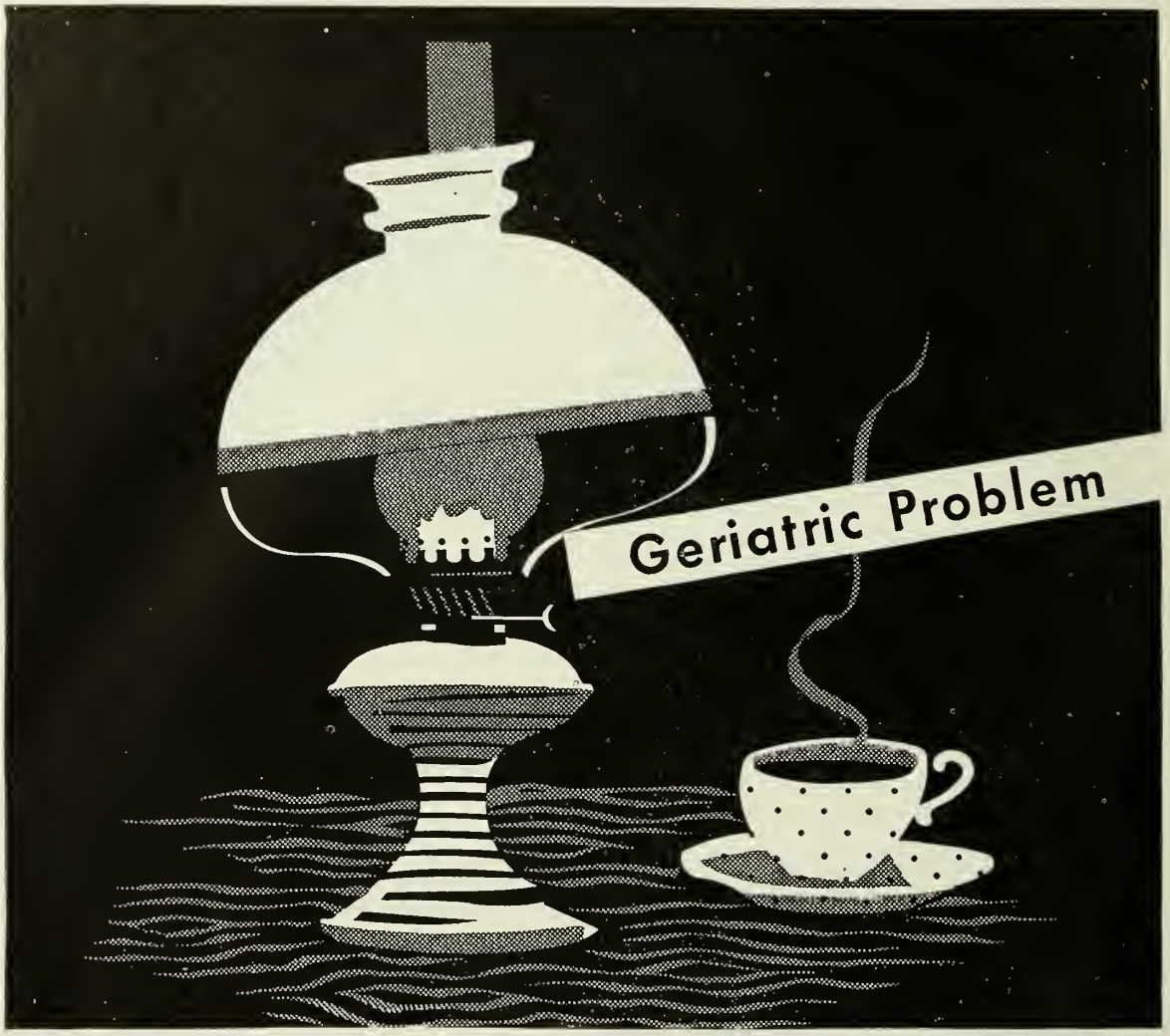
The reason why drawing on the capital fund must be continued is that this is the only source from which certain basic salaries, wages and maintenance costs can be paid. This capital fund provides the overhead expenditures, without which the hospital would not be in a position to obtain special grants. Outside donors will help to do something special which interests them. They do not look with favor on making contributions simply for running expenses. Money must be spent to get more money.

Without these special grants it would have been impossible to have continued in the manner described. They are obtainable because the major cancer research project as a whole has been well received and because it is conveniently divisible into special parts. Thus, in the transition from normal epidermis to epidermis in which the malignant transformation is brought about by applications of carcinogen, one can study its mineral constituents, its lipids, its enzymes and many other properties each of which, though contributing to the whole problem, can be rationalized as an individual project, financed and advanced as a unit.

But to carry on in this fashion consumes much time and energy which should be devoted to investigation. Many applications for grants have to be made, about half of which are rejected. When favorable action ensues the aid is usually for one year and it may or may not be renewed. During 1944, twenty-seven progress reports were made to donors and the individual financial accounting for the grants is no small undertaking. However, the task is made easier and much encouragement is gained by the action of the following outside donors who have supported the work regularly year after year, International Cancer Research Foundation, three years; anonymous donor, five years; National Cancer Institute, six years, and Montgomery Corporation, ten years.

ST. LOUIS AS A MEDICAL CENTER

Though asking for financial aid in St. Louis is prevented, the professional support received is most gratifying. The following list of titles of papers published in 1944 shows how many workers have



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achieved significant results in addition to those briefly mentioned in this progress report. Much of this work has been done merely by utilizing clinical facilites and by a thorough study of patents without encroaching on the capital research fund of the hospital. Healthful teamwork is therefore manifest between clinical and laboratory research.

Owing to the fact that cancer can develop in all parts of the body in which the cells possess the power of multiplication or can regain it, and at all ages from before birth to death in extreme old age, this group of malignant diseases can be approached from more angles than any other leading medical problem. It follows that the advice of specialists in almost all branches of medicine, and in the sciences basic thereto, is of great value and may make all the difference both in the development of new lines of inquiry and in researches already under way. Barnard Hospital is indeed fortunate in its location in a medical center of such eminence as St. Louis.

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Reprints of papers will be sent on request as long as the supply remains sufficient.

IS IMMUNITY TO PNEUMONIA POSSIBLE?

Can a person develop an immunity to pneumonia? The answer, which appears in the July 7 issue of *The Journal of the American Medical Association*, is that apparent specific immunity does occur after an attack of lobar pneumonia, but it is of brief duration. Medical reports cite instances in which two attacks caused by pneumonia of the same type occurred within a year. Consequently, recovery from an attack of pneumonia may not necessarily insure immunity against a later attack.

NEW OREGON LEGISLATION PROVIDES FOR HEALTH EDUCATION

The State of Oregon recently passed a progressive bill to further health and physical education. Known as House Bill No. 53, it is entitled: "An act to provide for programs of health instruction and physical education in all elementary and high schools of the state, to provide for the planning, supervision, direction and evaluation of such programs by the superintendent of public instruction, and appropriating money therefor. . . ."

The purpose of the law is to promote, develop and maintain among pupils at all levels "optimum physical growth, health and physical fitness."

The July 14 issue of *The Journal of the American Medical Association*, commenting editorially on the bill, says:

"The Oregon act is said to be the first legislation of its type in any state. Legislation, or even the effective functioning of the program under such legislation as this, will not necessarily eliminate all physical unfitness and all sources of poor health. Much can undoubtedly be accomplished, but not in a year or in two years. Measurable results may take ten years. In the meantime, those who work in the program and those who appropriate money for its support must not become discouraged. Even with the best program functioning at the highest possible efficiency some conditions are not remediable in the present state of medical knowledge. The time is ripe for great progress toward improved health and physical fitness."

PERIARTERITIS NODOSA

The Relation of Periarteritis Nodosa to Bronchial Asthma and Other Forms of Human Hypersensitiveness. Keith S. Wilson, M.D., and Harry L. Alexander, M.D. J. Lab. & Clin. Med. 30: 195 (March) 1945.

In 300 cases of periarteritis nodosa reported in the literature, the authors found 54 (18 per cent) associated with bronchial asthma. In almost every instance, the asthma antedated the periarteritis nodosa; in a few cases by many years, but in a great majority by but a few years and sometimes by only a month or two. In three cases, symptoms of asthma followed the onset of periarteritis nodosa.

The onset of the periarteritis nodosa and asthma occurred at all ages; the greater number after the second decade, in contrast to atopic asthma in which the greater number have their onset in the first and second decades. The asthmatic paroxysms were severe and rarely were they due to the absorption of foods or inhalants.

The most remarkable feature of these cases was the blood hypereosinophilia, ranging as high as 80 per cent with an average of 53.5 per cent. Of the ten patients with asthma without eosinophilia, no differential blood counts were recorded in seven; in the remaining three, it was 6 per cent, 4 per cent and 4 per cent respectively. There were 151 patients with periarteritis nodosa without asthma in which differential counts were recorded; only nine of these had blood hypereosinophilia. This gives an incidence of 6 per cent in contrast to the 94 per cent of the forty-seven cases with associated asthma.

The occurrence of periarteritis nodosa in drug allergy, in serum sickness, in bacterial allergy and in rheumatic fever is discussed.

Comment: As a result of the concept of allergy, wheezing dyspnea is slowly being separated into its components. Allergic or extrinsic and nonallergic or intrinsic bronchial asthma are identified readily and this compilation of the literature on periarteritis nodosa indicates a pathology that accounts for some instances of nonallergic bronchial asthma. That this pathology also is present in other clinical situations and can be produced experimentally, lends a hopeful outlook to a better understanding of bronchial asthma.

As a result of this scanning of the literature, periarteritis nodosa should be thought of when one has severe nonallergic intractable asthma and hypereosinophilia beginning after the second decade of life. It allows one to say, with greater emphasis, all is not atopy that wheezes, and now add, or has hypereosinophilia.

C. H. Eyermann, M.D.

SINGING NOT ADVISED FOR PERSONS WITH ARRESTED TUBERCULOSIS

Is singing advisable for a person who has a moderately advanced case of tuberculosis? The answer is definitely no!

In reply to this query, the July issue of *Hygeia, The Health Magazine,* advises against the extra strain that professional singing may put upon the lungs with healed lesions. Because rest is so important for the sick lung, the treatment of pulmonary tuberculosis usually involves pneumothorax—in which the lung is artificially collapsed and immobilized for healing. Possible reactivation by overloading already weakened lungs with an extra amount of work and strain would be tempting fate.

"The plea that many people with weak lungs study singing with the object of strengthening their lungs hardly applies here," the *Hygeia* article says. "Many of these people presumably had healthy lungs to begin with and have no trouble. On the other hand, if there is some weak spot in the lungs, the singing might possibly be the last straw."

FIND PENICILLIN AN IMPORTANT AGENT IN TREATING GAS GANGRERE

Penicillin has become an important agent in the treatment of gas gangrene—one of the bacterial horrors of war—according to a study reported in the July 14 issue of *The Journal of the American Medical Association.*

Lt. Col. Francis H. Langley and Capt. Lawrence B. Winkelstein, Medical Corps, Army of the United States, are the authors of a paper in which they report on 96 cases treated in an Army evacuation hospital.

Gas gangrene is a local wound infection caused by bacteria which attack only injured tissues, form spores and secrete powerful toxins. The authors state that "the disease develops so soon after wounding and runs so swift a course that delays and difficulties of treatment in the field are not the principal reason for its high incidence and mortality."

The Army doctors emphasize that early surgical debridement—removal of the damaged tissue—"is the one single measure of vital importance in the prophylaxis [prevention] as well as the treatment of gas gangrene."

Surgery alone, however, is not completely effective in treating the infection. Penicillin in large doses has helped to reduce both mortality and extent of the disease. Gas gangrene antitoxin also plays an important role, for while penicillin may definitely stop the growth of the organisms, the neutralizing effect of the antitoxin is essential for the cure of the disease.

After completion of the surgery, therefore, the physicians sum up the specific treatment of gas gangrene infection as "the active and aggressive use of penicillin and gas gangrene antitoxin, the former for its action against the organisms themselves and the latter for overcoming the toxins produced by them."

MODIFIED PENICILLIN DOSAGE MAY BE ADMINISTERED BY MOUTH

Three Washington, D. C., research scientists combined penicillin with certain aluminum or magnesium compounds and discovered a method whereby the drug could be taken by mouth with effective results for the treatment of various diseases.

Henry Welch, Ph.D., Clifford W. Price, A.B., and Velma L. Chandler, B.S., report in the July 21 issue of *The Journal of the American Medical Association* that the administration by mouth of "four doses of 25,000 units each two hours apart of penicillin modified by either aluminum hydroxide or magnesium hydroxide will result in a prolonged level of penicillin in the blood stream."

"Following each dose," the investigators say, "there is a pronounced increase in the blood concentration level of penicillin, and this blood level may be increased with subsequent doses. Relatively high level of penicillin may be maintained in blood by increasing the frequency of the doses of penicillin-aluminum hydroxide."

They conclude that because of the prolonged penicillin concentrations in the blood following this method of administration by mouth, this dosage form may have some definite preventive value in disease.

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AUGUST, 1945

EDITORIALS

"DOCTOR PREFIX"

The "Doctor Prefix Bill," House Bill No. 206, has been passed by both houses and was approved by the Governor on June 22. The bill appears on page 505 in this issue of THE JOURNAL.

The bill will become effective ninety days after the General Assembly adjourns, which it has been indicated probably will not be until after the first of the year.

Interpretation of the bill is that each practitioner of a healing art must indicate his field of practice by suitable abbreviation, showing the degree that he holds, on letterheads, cards, bill heads and with any use of his name in connection with his professional work. Thus a doctor of medicine must have his name appear as

Dr. John Doe, M.D.
or
John Doe, M.D.

WAKE UP! WAKE UP! WAKE UP!

Under this heading the following editorial appeared in the *St. Louis Medical Society Bulletin* of June 22 signed by Dr. Armand D. Fries, Editor of the bulletin:

"If we do not follow this advice, the 'too late bug' will bite us and bite us hard! This time it may be fatal! We must get out of our lethargy and open our eyes to let in the true light.

"Again we are faced with a new crisis in Medical Care Planning. There are newer and more insiduous elements which are now attempting the job of dispensing Medical Care. These are not of the Medical Profession, but are determined, all powerful, organized, and not easily discouraged elements. They are not congressional in origin. We must awaken to the sad realization that competition is undermining the good start made by the Medical Care Plan adopted by us as physicians at our last State Convention. We must support our ideas immediately and with energy or we will lose our identity as leaders in the Medical Care of our patients. Should we be tranquil or undisturbed, we will have to abide by these newer plans which are similar to the Wagner-Murray-Dingell Bill.

"The Missouri Medical Service plan is the physicians' first organized attempt to forestall the threat of regimentation. As it is new, the beginning must be hard and mistakes can be expected. Time alone in any new project will iron out these deficiencies. The cost of protection is a great deal less than the 8 per cent of the total salary as in the Wagner-Murray-Dingell Bill. Free choice of physician is stressed. Because of previously established organization, the plan is sold through the Blue Cross. In fact, 4,000 families of St. Louis are now enrolled in it with inquiries piling up at a healthy rate. As the Blue Cross has increased its benefits to an astounding degree since its inception, so should we be able to expect material benefit increases for Medical Care under such able management. Experience and a large enrollment will help us to reach this goal. Time will be needed to cover everyone.

"To save ourselves from being pushed to the background, we must support this plan. This is MOST URGENT! By helping ourselves, we will keep the vast number of lay people who are seeking relief from calamitous illness from joining these newer regimentative plans. We thereby save these peoples from inferior medical practices.

"We must remain united and go along with our plan, bearing with its mistakes, both current and those that inevitably must come. We must all sign our M.M.S. cards. We must all be members. We must all be missionaries. We must all acquaint our friends, patients and groups of the Missouri Plan. If we do not undertake these things, we will not be the missionaries but the flock that will have to be converted to a newer medical regimentative type of Medical Care Plan not to our liking.

"This Threat is most serious NOW.

"Wake Up! We don't want to say 'We told you so.' We want to say, 'Well done.'"

NEWS NOTES

Dr. E. K. Langford, Platte City, has been appointed county physician for Platte County and health officer of Platte City.

Dr. Robert Vinyard, Springfield, was one of the speakers at the laying of the cornerstone of the new nurses home at St. John's Hospital, Springfield, on June 10.

Dr. R. M. James, Joplin, began his duties as State Health Commissioner on July 1.

The class of 1895 of the Missouri Medical College (now Washington University School of Medicine) celebrated the fiftieth anniversary of its graduation in St. Louis on June 22 and 23. On Friday evening the attending members were guests of honor in the receiving line at a reception and dance to the 1945 graduates. On Saturday morning the jubilarians were introduced individually during the regular annual commencement exercises of Washington University School of Medicine in Graham Memorial Chapel. On the evening of June


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23, twelve of the twenty-three surviving members of the original class of sixty-three, with their attending ladies, had dinner which was followed by the reports of the several class officers and an interesting discussion of their experiences by the respective members. The class poet, Dr. John Zahorsky, read an appropriate poem, as he has done at previous occasions. In attendance at the celebration were Drs. W. M. Munsell, Grandview, Washington; N. T. Enloe, Chico, California; S. Horwitz, Peoria; E. P. Staff, Ramsey, Illinois; W. E. Angell, Rocheport, Missouri; J. W. Winn, Higbee, Missouri; W. E. Gibson, DeSoto, Missouri; C. G. Ahlbrandt, Kirkwood, Missouri; A. T. Quinn, R. E. Schlueter, R. J. Terry and John Zahorsky, St. Louis.

MISSOURI DOCTORS IN SERVICE

Lieutenant Colonel Brian B. Blades, St. Louis, Chief of the Thoracic Surgical Section of Walter Reed General Hospital, Washington, D. C., has been appointed consultant to The Surgeon General in thoracic surgery, in addition to his other duties.

Major Frank S. Hogue, Kansas City, has been in Kansas City on furlough, after which he will report to Camp Crowder for reassignment.

★ ★

Captain Alphonse McMahon, St. Louis, Chief Medical Service, U. S. Naval Hospital, Bethesda, Maryland, accompanied President Truman and his advisory party on the trip to Berlin to consult with Stalin and Churchill.

Colonel Lee D. Cady, St. Louis, commanding officer of the Twenty-first General Hospital in France, was decorated July 19 with the Croix de Guerre by the French Government "for exceptional services during the liberation of France." The ceremony took place in Paris at Napoleon's Tomb.

★ ★

Colonel Howard A. Rusk, St. Louis, director of the Convalescent Rehabilitation Division of the Army Air Forces, flew from Washington to Potsdam, Germany, to confer with President Truman and General Omar N. Bradley on the reorganization of the Veterans' Administration.

LEGISLATION

House Bill No. 206, known as the doctor's prefix bill, was approved by the Governor on June 22. The bill follows.

To prohibit the use by any person licensed to practice medicine, surgery, dentistry, optometry, osteopathy, chiropractic, chiropody, or veterinary surgery, or any two or more of such professions, and any person permitted to practice the curing, healing or remedying of ailments, defects of diseases of body or mind, from using the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, prescription blank, sign or public listing or display without affixing thereto suitable words or letters designating the degree held by such person or the particular type of practice in which such person is engaged which designation shall represent the profession such person is legally authorized to practice, making violation of the Act a misdemeanor and fixing the punishment therefor, and providing that the Act shall not apply to the use of said prefix by doctors of letters, doctors of science, doctors of law, doctors of divinity, or doctors of philosophy not practicing the curing, heal-

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ing or remedying of bodily or mental ailments, defects or diseases.

Section 1. No person now or hereafter licensed in this state to practice medicine, surgery, dentistry, optometry, osteopathy, chiropractic, chiropody, or veterinary surgery, or any two or more of such professions, and no persons specifically permitted by law to practice the curing, healing or remedying of ailments, defects or diseases of body or mind with or without a license, shall use the prefix "Doctor" or "Dr." in connection with his name in any letter, business card, advertisement, prescription blank, sign or public listing or display of any nature whatsoever, without affixing thereto suitable words or letters clearly designating the degree held by such person or the particular type of practice in which such person is engaged which designation shall represent the profession such person is authorized to practice by license or privilege under the laws of this state.

Section 2. Nothing contained in this Act shall prohibit the use of such prefix by any person holding the degree of doctor of letters, doctor of science, doctor of law, doctor of divinity, or doctor of philosophy, provided such person does not practice the curing, healing, or remedying of ailments, defects or diseases of body or mind.

Section 3. Any person who shall violate the provisions of this Act shall be guilty of a misdemeanor and upon conviction thereof shall be punished by fine of not more than five hundred dollars ($500.00) or imprisonment in the county jail for not more than six months, or by both such fine and imprisonment. Each day upon which this Act shall be violated shall be and constitute a separate offense and shall be punishable in like manner with each other offense.

The present status of other bills of interest to medicine follow:

H. B. No. 402, the osteopathic bill which would have granted almost equal rights to practitioners of osteopathy as medical doctors now have and in effect would have created by law two examining boards for the practice of medicine, namely, the Board of Health for M.D.'s and the Board of Osteopathic Examiners for osteopaths, was defeated on final passage in the House on June 20. The bill was reconsidered June 22 and again was defeated.

H. B. No. 138, the bill to provide four years of medical training at the University of Missouri with the last two years in Kansas City, has passed the House. The bill has been referred to the Senate Committee on Education. This committee will hold hearings and consider the matter in the fall after the summer recess.

H. B. No. 291, which provides for scholarships for medical students, has passed the House and has been referred to the Senate Committee on Education.

H. B. No. 280, which provides that a county or a group of counties may vote a bond issue in order to build and maintain a county or community health center, has passed the House and is now in the Senate Committee on Fees and Salaries.

S. B. Nos. 85, 86 and 87, recommended by the Committee on Mental Health of the Missouri State Medical Association, provide for salary increases for the superintendents and assistant physicians in the state mental and tuberculosis hospitals. The bills also provide for more physicians in these institutions so that the ratio of patients to physicians will be smaller. The bills have passed both houses and will become law when signed by the Governor.

The Legislature recessed on June 29 and will reconvene on September 4. Although many of the committees which are preparing legislation to cover changes in the laws necessitated by the new Constitution will continue their work through the summer months, no official business will be transacted until after September 4.



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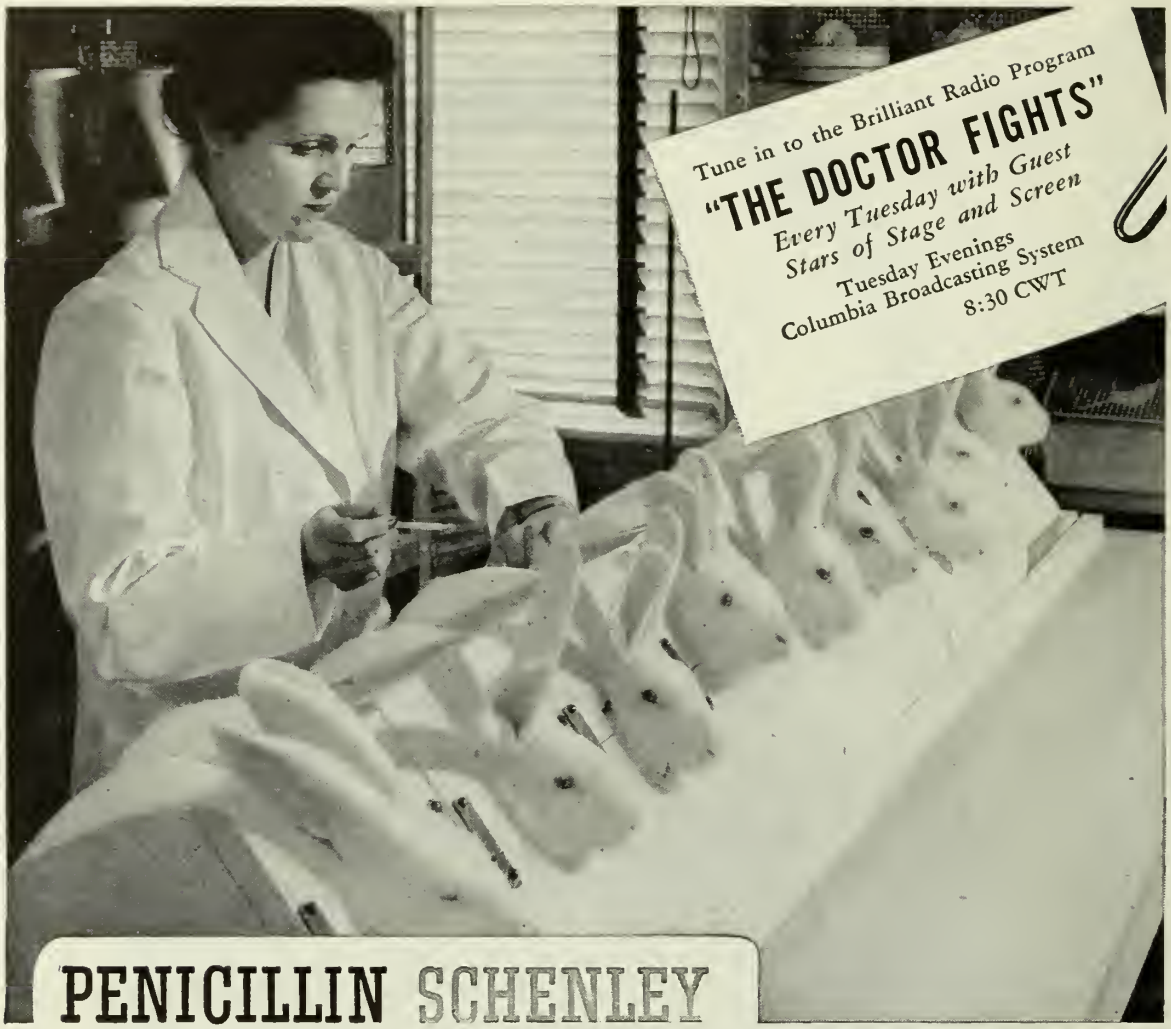
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THE COUNCIL

Meeting of June 23, 1945

The Council met on June 23 and 24 at the Coronado Hotel, St. Louis, with Dr. W. A. Bloom, Fayette, Chairman, presiding. Those present were: Drs. H. E. Petersen, St. Joseph; H. B. Goodrich, Hannibal; J. W. Thompson, St. Louis; R. B. Denny, Creve Coeur; W. A. Bloom, Fayette; R. W. Kennedy, Marshall; Wallis Smith, Springfield; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; A. S. Bristow, Princeton; R. L. Thompson, St. Louis; C. E. Hyndman, St. Louis; Robert Mueller, St. Louis; Lt. Raymond McIntyre, Barin Field, Florida; W. H. Bartleson, Kansas City; Thomas W. Parry, St. Louis; T. R. O'Brien, St. Louis.

Mr. O'Brien reported on the present status of legislation, reporting that the bill for the four year medical school, H. B. No. 138, had passed the House, and that the osteopathic bill, H. B. No. 402, had been defeated on final passage by a small margin but there is a possibility it may be brought up again on the floor of the House because one of the proponents changed his vote. Attention was called to material that was sent to the legislators by the osteopathic proponents just prior to the bill coming up for final passage.

The Treasurer reported the financial condition of the Association satisfactory and his report was accepted.

Lt. McIntyre, who was on a few days leave, was greeted by the Council.

Mr. O'Brien reported that the only dates open for the Annual Session near the usual time in St. Louis were March 24, 25 and 26. Upon motion of Dr. Thompson it was voted to leave the dicision about time and place of meeting to the Executive Secretary and the Chairman of the Council.

After discussion by the Council, Dr. Claude J. Hunt, Kansas City, was appointed to the Committee on Cancer Biopsy to fill the unexpired term of Dr. J. E. Stowers, Kansas City. Dr. Hunt was named chairman of the committee.

Mr. Parry reported work done in Public Relations by large charts. These showed thirty-four newspaper stories on thirteen subjects in forty-four weeks; essay contest; ten broadcasts in ten cities; attendance at meetings of eleven projects vital to the Association; twenty-four page booklet on University of Missouri Medical School; three speeches written, scheduled and publicized; survey prepared and tabulated on postwar and University of Missouri Medical School; work with county medical societies and direct mail; showing a total in eleven months of 1,040 hours spent by staff members, or a total of 130 days.

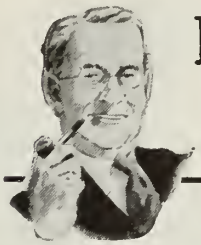
Mr. O'Brien read a letter from the Michigan State Medical Society concerning the Michigan Health Council, the purposes of which are (1) present a united front on all matters of common interest; (2) coordinate related activities; (3) conduct a joint public education program.

Dr. Goodrich suggested that President Truman be acquainted with the work in medical care being promoted in Missouri and in other states.

Mr. Bartleson stated that Dr. James R. McVay has just been made vice chairman of the American Medical Association Council on Medical Service and Public Relations and it was suggested that the feeling of the Council be expressed to Dr. McVay.

Dr. J. W. Thompson reviewed the work in St. Louis in the interest of the Department of Public Health and Welfare under the new Constitution, pointing out that a Citizens' Committee had been formed with which the health group had met many times but that no agreement of a set-up had been made with that group. He pointed out that the Community Health League had appointed a committee consisting of Drs. Bristow, Sewell, Peden, Mantz and Thompson to promote the interests of the health group. He recommended that the Council cooperate with the Community Health League committee and through them and together with allied

Advertisement



From where I sit
by Joe Marsh

Dr. Walters Lends a Helping Hand

Dr. Walters got home early from a tough case the other day, and found his missus in the middle of house cleaning, with the furniture moved around, and the place a shambles.

Some men might have grumbled about coming home for a little rest and finding their homes upset. But not the doctor. He just took his coat off and pitched in and helped.

And when he got the last curtain back in place, and stepped down off the ladder, there was his missus with a tray of cold beer and cheese blintzes she'd made specially. And blintzes are the doctor's favorite dish.

From where I sit, it's little things like this that will help to ease our troubled lives today—see us through difficulties—keep alive the spirit of good fellowship and mutual respect. Try trading a helping hand for ice-cold beer and blintzes. See if it doesn't make life seem a little brighter!

Joe Marsh

Copyright, 1945, United States Brewers Foundation

health groups draw up a bill outlining the Department of Public Health and Welfare so that it will meet the needs of the people of Missouri and also meet medical standards and so that matters of policy will arise from those having skill in medical work rather than from lay groups.

Dr. Baldwin moved that this recommendation be accepted and after discussion by Mr. O'Brien, Drs. Goodrich, Mueller and Thompson the motion was passed.

Dr. Mueller reported on the present situation in obtaining release of doctors from service and it was asked that material which could be released be made known to the doctors throughout the state either through The Journal or by direct mail.

Meeting of Sunday, June 24

Mr. O'Brien reported that there was a possibility that the office might be moved into better quarters in the same building.

After discussion by Dr. Thompson, Dr. Smith moved that the Council authorize the changes. Passed.

The chairman appointed the following committee to act on public relations work of the Association: Drs. Wallis Smith, Chairman; Hyndman, Baldwin, Goodrich and Mueller.

Dr. Bristow stated that he had been contacted by the Woman's Auxiliary and that they wished an Adviser from the Council and also five additional advisers. Dr. Bristow appointed Dr. Mantz as Adviser to the Woman's Auxiliary and as the five additional advisers: Drs. F. T. H'Doubler, Springfield; E. C. Bohrer, West Plains; H. B. Goodrich, Hannibal; H. E. Petersen, St. Joseph, and Paul Baldwin, Kennett. He also asked that $50.00 be placed at the disposal of the Woman's Auxiliary, which was done.

Dr. Bristow suggested that attention be called to the issues of The Journal in which Council minutes appeared that members could be more informed of the work of the Council.

Dr. Vohs reported that the first group was enrolled in Missouri Medical Service on April 15; that to date there are 4.084 enrolled; 51 groups; 2 claims have been paid, 4 approved and 6 which have not cleared as yet; the largest group is 346 persons with dependents and the smallest group 16 with the average being 86. Dr. Vohs read an editorial which appeared in the St. Louis Medical Society *Bulletin* and suggested that it appear in the August issue of The Journal. Short discussion followed by Drs. Petersen, Goodrich, Thompson, Mr. Bartleson and Mr. O'Brien.

Dr. Petersen moved that if counties in his District had not made a decision regarding choice between Missouri Medical Service and Surgical Care, Inc., contract within 90 days, that the type of contract to be sold in the county be left to the best judgment of officials of Surgical Care, Inc. The motion was passed.

Dr. J. W. Thompson pointed out the situation on clinical laboratories in that anyone, however unqualified, could open a laboratory and suggested that the Council adopt a resolution asking the State Board of Health to take some action on this question. The following committee was appointed to draft a resolution: Drs. Petersen, chairman, Thompson and Kennedy.

Mr. O'Brien suggested that the bulletin sent to Councilors each month might also go to secretaries and presidents of county societies and include matters with which secretaries might not be conversant although Councilors are. Upon motion of Dr. Petersen, the executive secretary was so instructed.

W. A. Bloom, M.D., Chairman.



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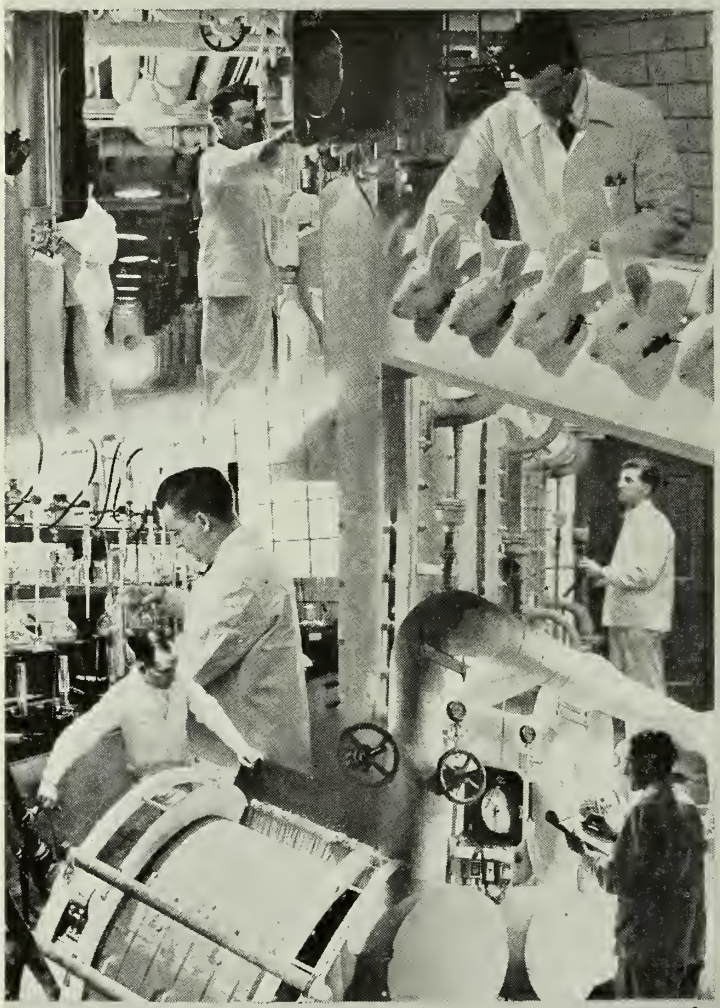
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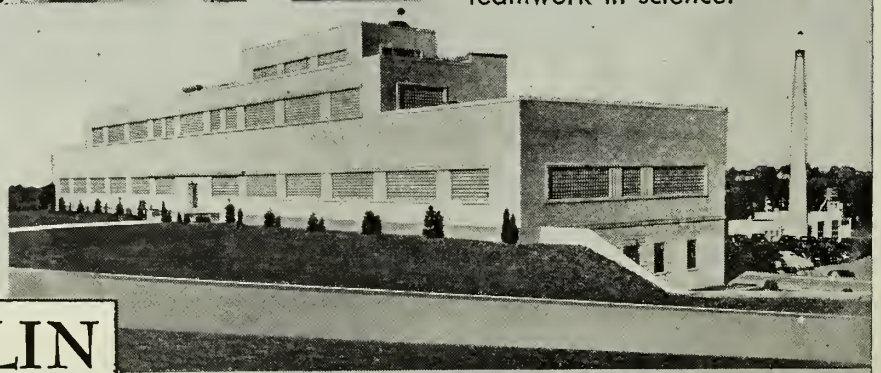
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COUNCILOR DISTRICT AND SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL 1945

(SOCIETIES WHICH HAVE PAID DUES FOR ALL MEMBERS AND DATE PLACED ON HONOR ROLL)

Perry County Medical Society, December 1, 1944.
Moniteau County Medical Society, December 19, 1944.
Camden County Medical Society, December 19, 1944.
Ste. Genevieve County Medical Society, December 22, 1944.
Dallas-Hickory-Polk County Medical Society, December 23, 1944.
Pulaski County Medical Society, January 2, 1945.
Scott County Medical Society, January 2, 1945.
Chariton County Medical Society, January 2, 1945.
Audrain County Medical Society, January 3, 1945.
Holt County Medical Society, January 9, 1945.
Dent County Medical Society, January 13, 1945.
Macon County Medical Society, January 15, 1945.
Mercer County Medical Society, January 15, 1945.
Webster County Medical Society, January 22, 1945.
Harrison County Medical Society, February 9, 1945.
Lincoln County Medical Society, February 10, 1945.
Morgan County Medical Society, February 12, 1945.
Carroll County Medical Society, March 12, 1945.
Christian County Medical Society, March 14, 1945.
Saline County Medical Society, March 15, 1945.
Callaway County Medical Society, March 26, 1945.
Henry County Medical Society, April 13, 1945.
Pettis County Medical Society, April 23, 1945.
Cass County Medical Society, May 4, 1945.
Stoddard County Medical Society, May 7, 1945.
Bates County Medical Society, May 22, 1945.
Boone County Medical Society, July 12, 1945.

NINTH COUNCILOR DISTRICT

E. C. BOHRER, WEST PLAINS, COUNCILOR

Dallas-Hickory-Polk County Medical Society

The Dallas-Hickory-Polk County Medical Society met in Bolivar on May 2, with Dr. G. C. Plummer, Buffalo, president, presiding. Members present were Drs. Plummer, D. G. McCraw, Bolivar; R. C. Nevins and Stufflebam, Humansville, and T. D. Wrinkle, Halfway.

Dr. Charles A. Brasher, Mt. Vernon, and other members of the staff of the Missouri State Sanatorium at Mt. Vernon presented the program.

D. C. MCCRAW, M.D., Secretary.

TENTH COUNCILOR DISTRICT

PAUL BALDWIN, KENNETT, COUNCILOR

New Madrid and Pemiscot County Medical Societies

The New Madrid and Pemiscot County Medical societies met in Portageville on June 26. Dr. Paul Baldwin, Kennett, Councilor of the District, was a guest.

Major Charles T. Herbert, Cape Girardeau, gave a talk on "Tropical Diseases That Might Be Transmitted by Returning Soldiers."

Dr. G. J. Tygett, Cape Girardeau, spoke on "Common

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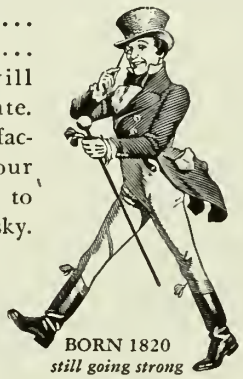


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BUY UNITED STATES WAR BONDS AND STAMPS

Eye Affections That the Doctor May See in Private Practice and How to Treat Them."

John J. Killion, M.D., Secretary,
New Madrid County Medical Society.

CORRESPONDENCE

COLONEL ROWNTREE THANKS PHYSICIANS

National Headquarters
Selective Service System
21st and C Streets NW., Washington 25, D. C.
June 13, 1945

Colonel W. L. Gist
310 East Capitol Avenue
Jefferson City, Mo.

Dear Colonel Gist:

As I am about to leave my assignment as Chief of the Medical Division of the Selective Service System after four and one half years of duty, I want to express to you my deep appreciation of your friendship, your loyal and effective service, and for your leadership within your state.

Even before war, our country required the services of the medical and dental professions. These professions responded gloriously so that the processes of procurement and selection were made to function smoothly and efficiently.

As I recall the splendid leadership in your state, I shall always point with justifiable pride to your record of accomplishment. The Nation today is awakened to its many medical problems, in a large part, because of the effective work you, your staff and the doctors of your state have done through your connections with the Selective Service System.

This brings my deepest thanks for your many courtesies and kindnesses to me and for your splendid work for the Selective Service System.

Sincerely,

L. G. Rowntree,
(Colonel, Med. Res.),
Chief, Medical Division.

BOOK REVIEW

Pathology of Labor. The Puerperium and the Newborn. Textbook on Pathology of Labor, The Puerperium and the Newborn. By Charles O. McCormick, A.B., M.D., F.A.C.S. Clinical Professor of Obstetrics. Indiana University School of Medicine; Consulting Obstetrician to William H. Coleman Hospital for Women, Indianapolis City Hospital, and Sunny Side Sanitarium. With 191 Illustrations Including 10 in Color. St. Louis: C. V. Mosby Company. 1944. Price $7.50.

The volume is an outgrowth of the author's lectures to senior medical students at Indiana University.

The author attempted to set forth his essentials of present day obstetric thought and he has done so very satisfactorily. The work is in outline form yet the structure is embellished cleverly with emphatic blasts and warnings and guideposts which make the important items arresting and not too easily forgotten. He uses the unconventional feature of substituting the second person for the third in descriptions of technics.

This is an enthusiastic, well illustrated, direct presentation of good teaching; fresh and breezy; obviously by a very practical man of no little personal experience with also a few of its disappointments. The student who would master the principles of this volume would certainly possess excellent fundamentals of obstetrics, well organized and evaluated.

The book is worthy of buying for the collection of obstetric aphorisms at the end of the volume. A. B. S.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

Fall Board Meeting
Thursday, September 20
Missouri Hotel
Jefferson City

School of Instruction 11:00 a. m.
Luncheon 12:30 p. m., $1.25

Organization

Every eligible doctor's wife in Missouri a member of the Auxiliary is our goal for 1945-1946.

This year, more than ever before, there is an urgent need to strengthen our Auxiliary. This need will become greater during the postwar period and our plans should be formulated now. Therefore, I again am appealing to the County Presidents to invite the doctors' wives of their adjoining unorganized counties to their meetings and to interest them in organizing their counties or joining as members-at-large.

All doctors' wives should be united now as never before. They should know the problems facing organized medicine today. The Auxiliary is the only woman's organization that can give authentic information on these problems and is interested in your husband's professional welfare.

Physicians' wives hold an enviable position in being privileged to bring before other women dependable knowledge on health and postwar planning to protect health and a just appreciation of the spirit, aims and achievements of the medical profession.

The map in the July issue of THE JOURNAL shows twenty-two counties in the state organized with a membership of 874. There has been a steady increase in our membership each year. May we depend on each one of you to help keep up this fine record?

MRS. GEORGE W. RUDDELL, Organization Chairman.

Hygeia

Do You Know?

That the American Medical Association Bureau of Health Education seeks to promote health education of the public through *Hygeia?*

That Missouri won third place in the national *Hygeia* contest in 1944 with Perry, Cass and Buchanan counties taking money prizes?

That the national *Hygeia* contest for 1945-1946 starts on September 1, 1945?

Where Should We Find *Hygeia?*

1. In the home of every Auxiliary member.
2. In the reception rooms of every physician and dentist.
3. In every reading room of community centers, hospitals, colleges, high schools and institutions.
4. In the homes of our friends and relatives as appropriate gifts of Auxiliary members.
5. In the hands of every instructor of home nursing and every member of visiting nurses' associations as a guide in health instruction.
6. In every U. S. O. center and military encampment recreation center.
7. In every base hospital library.
8. In Y. W. C. A.'s, Y. M. C. A.'s and Red Cross reading rooms.
9. In reception rooms of beauty parlors.

MRS. O. A. CARRON, Hygeia Chairman.

Suggested Ideas and Topics for Monthly Programs

Slogan: Promote the Advancement of Health Education through Service.

Watch words: Organization, *Hygeia, National Bulletin.*

This summer is the time to be thinking about those fall programs that must be planned. It is hard to add anything to Mrs. W. L. Allee's splendid outline of last year's program. With such a broad range of subject material no organization could have covered it all. To live up to our slogan by promoting the advancement of health education through service is very worth while and I have tried to incorporate that in the programs offered in the monthly outline. I hope these ideas and topics may help all program chairmen.

September—The problems of juvenile delinquency.

October—Guest day. Invite doctors' wives from unorganized counties to be your guests. *Hygeia.* Use articles from *Hygeia* Magazine as a basis for the program. Announce plans of State Essay Contest.

November—Medical legislation used for Public Relations Program. Keep up to date on new bills affecting state and national groups.

December—Remembering those less fortunate. Render Christmas service to local hospitals, U. S. O. centers, county homes or needy families.

January—Founders Day. History and objective of Woman's Auxiliary with *National Bulletin* used as textbook.

February—Physical Fitness. Dr. W. W. Bauer, 535 N. Dearborn, Chicago 10, Ill., has emphasized the need for such a program. He can furnish you with transcribed radio programs on health and films on health topics.

March—Modern Miracles—a study of advancement of medicine in a World at war. March 30—celebrate Doctors' Day.

April—Cancer Control. Congress has designated this as Cancer Control Month. Every member should take an active part in the membership campaign.

May—U. S. Cadet Nurse Corps. A program to interest young women in the advantages of cadet nurse training. Graduates from high school could be invited as guests to hear a speaker.

MRS. M. L. DIEKROEGER, Program Chairman.

The President's Message

Greetings to you all. I am very pleased to announce the plans for the Fall Board meeting. It will be held Thursday, September 20, at the Missouri Hotel, Jefferson City. We are inviting all chairmen from every county to come for a School of Instruction and Round Table Discussion starting at 11:00 a. m. The presidents of county auxiliaries also will meet for round table discussions at 11:00 a. m. Luncheon will be served at 12:30 o'clock. The Board meeting will convene at 2:00 p. m. After the meeting is adjourned, we plan a trip through the Capitol Building, followed by a tea.

It would be well to clip the Auxiliary page and put it in your file for future reference. In the July issue of THE JOURNAL, the Auxiliary page carried the list of all officers, chairmen and county presidents.

I hope that all officers, chairmen and members recognize the value of the *National Bulletin.* You should subscribe to it annually. It is a real textbook for our Auxiliary. This is essential to a unified informed membership. I would like to call attention to the May issue, page 210. Mrs. J. B. McCubbin has written a splendid annual report of Missouri for 1944-1945.

MRS. HARRY M. GILKEY, President.

For the infant deprived of mother's milk



SIMILAC

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A powdered, modified milk product especially prepared for infant feeding, made from tuberculin tested cow's milk (casein modified) from which part of the butterfat is removed and to which has been added lactose, olive oil, coconut oil, corn oil, and fish liver oil concentrate.

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Similac provides breast milk proportions of fat, protein, carbohydrate and minerals, in forms that are physically and metabolically suited to the infant's requirements. Similac dependably nourishes — *from birth until weaning.*

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BOOK REVIEWS

THE EXAMINATION OF REFLEXES. A Simplification by Robert Wartenberg, M.D. Foreword by Foster Kennedy, M.D. Chicago: The Year Book Publishers. 1945. Price $2.50.

This interesting, readable booklet of 182 pages of packed material has a bulging reference list of 465. A few of the bibliographic numbers, being so small, are not always perfectly clear in the text. The book would make a valuable addition to any good medical library. There is a foreword by Dr. Foster Kennedy in his characteristic somewhat caustic humorous style; for example: "The open season for 'Hunting of the Reflex' was the 30 years around the turn of the century."

The author apparently has condensed a review of possibly all, or nearly all, of the reflexes reported in the literature. Arguments pro and con also are included in the text. The writer has spared no criticism where he thought it was due and frequently expresses this in a humorous and entertaining style. He has endeavored to demonstrate that many of the reported varieties are not new or original as the man whose name is attached to a particular reflex would have one believe. The author constantly aims to consider the reflexes from their physiologic standpoint rather than how they might be elicited. Over and over again he refers to the "muscle stretch reflex." In other words he would ascribe the phenomenon of reflex muscular movements to tension or a stretch placed on the particular muscle or group. Many methods may be used to elicit the same phenomenon. Over and over again he calls attention to the fact that the same reflex will be described as many separate ones because of the methods to obtain it and by using the originator's name. As an illustration, figure 7, on page 176 shows twenty different methods to obtain the plantar muscle reflex. All of these points where it is elicited have been given the name of the investigator thinking he had discovered a genuinely new reflex. The author reports on what he thinks is a clear cut separation of the abdominal skin reflex and the abdominal muscle reflex. Paradoxically, he uses thirteen pages to describe the abdominal muscle reflex and six for the abdominal skin reflex. Most clinicians would consider the abdominal skin reflex as of greater importance contrasted with the abdominal muscle reflex. A. L. S.

TEXTBOOK OF OPHTHALMOLOGY. By Sanford R. Gifford, M.A., M.D., F.A.C.S. Formerly Professor of Ophthalmology, Northwestern University Medical School, Chicago; Formerly Attending Ophthalmologist, Passavant Memorial and Cook County Hospitals. Illustrated. Third Edition, Revised. Philadelphia: W. B. Saunders Company. 1945. Price $4.00.

To reiterate this reviewer's statement from the review of the first edition, "the author's attempt to compress within the limited space of a volume which may be used by medical students and general practitioners the essential facts of modern ophthalmology, has been well and thoroughly accomplished."

In the seven years since its first publication, the demand for this excellent volume is proof enough that despite keen competitive works a third edition is now set forth.

Just why the publishers used the word "Formerly," instead of the late Professor is not indicated.

The pages are fewer because of the paper shortage. However, in spite of the fact that quite a few of the black and white photographs of the fundus conditions have been replaced, as also is true of photographs of diseases of the anterior segment of the eye, there are still a few included which would be very difficult to interpret if the legends were not included. With this minor criticism, it may be said that this text is by far the most valuable of its type on this subject. L. L. M.

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COMMERCIAL ANNOUNCEMENTS

COOPERATION OF RESEARCH DEPARTMENT

Cooperation between its own research staff and university medical research has reached a new high peak at the Frederick Stearns & Co., Division, Sterling Drug Inc., according to Dr. J. Mark Hiebert, vice president in charge.

In addition to an increased number of individual scientific studies currently under way Stearns this year has financed a total of seventeen research grants and fellowships to outstanding universities and hospitals.

"This combination of pure scientific and practical research is bound to lead to a general elevation of research activity of benefit to humanity," Dr. Hiebert declared.

Earl Burbridge, M.D., medical director of Stearns, supervises all clinical research, which includes a growing number of individual study projects by university and public clinics throughout the country. Dr. Melville Sahyun, vice president in charge of research, supervises grants to universities for chemical and biological research.

Among grants from Stearns this year are four to the University of Michigan, and one each to Wayne University, the University of Texas, University of Georgia, University of California, Jefferson Medical College, Hektoen Institute of Medical Research, Chicago, New York University, Temple University, William Seymour Hospital, Eloise, Mich., Tufts Medical School, University of Illinois, and Beth David Hospital, New York.

WINTHROP POSTWAR EXPANSION IS OUTLINED AT CONFERENCE

Doubling of both the detail staff and the number of professional service offices and the erection of several additional laboratory and manufacturing buildings at Rensselaer, N. Y., have top priority in the postwar plans of Winthrop Chemical Company, Inc.

This was disclosed by James Hill, Jr., president of Sterling Drug Inc., the parent company, at the 11th annual conference of Winthrop's professional service office managers, held at Rensselaer from June 14 to 21.

"In order to take up the slack in orders which will be created by the end of hostilities and thus to maintain full employment," Mr. Hill said, "Winthrop's management, production, research and sales divisions will be expanded. Research has already been increased, but the enlargement of this function will continue. We have plans on the drawing boards now for additional manufacturing and research buildings. As for personnel, as soon as the war is over, we intend to have a professional detail staff of 350 to 400 persons, as compared with the present 200,

Twenty-five professional service office managers and key headquarters personnel attended the conference. Dr. Theodore G. Klumpp, president, was toastmaster at the final dinner, attended by 150 members of Winthrop's staff, while J. M. Grece, director of sales promotion, presided at the meetings.

In addition to those named, the following also attended the conference: Dr. A. E. Sherndal, and Dr. F. J. Stockman, vice presidents; John Mulhern, Sterling treasurer; Dr. H. L. Hansen, Dr. M. Lasersohn, and L. C. Tiller, assistants to the president; J. G. Jordan, assistant secretary; Dr. Richard Carroll, production superintendent, and Dr. Charles Fanslau, head of the veterinary department.

Professional service office managers attending included: S. C. Mills, Chicago; J. M. Still, Atlanta; W. D. Riley, New Orleans; C. H. Blanton, Baltimore; F. J. Coughlin, Boston; A. J. Stauff, Buffalo; W. E. Gurske, Minneapolis; W. H. Buckles, Cleveland; P. B. Lecrone, New York; R. C. Bowman, San Francisco; and O. A. Wasem, St. Louis.



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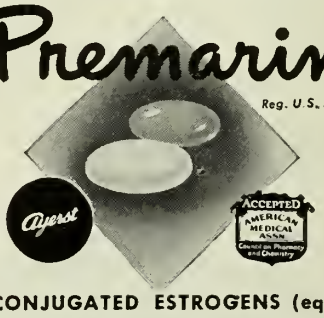
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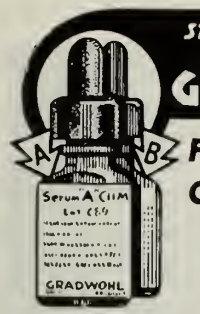
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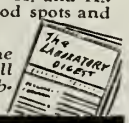
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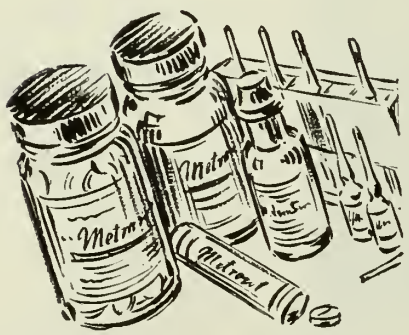
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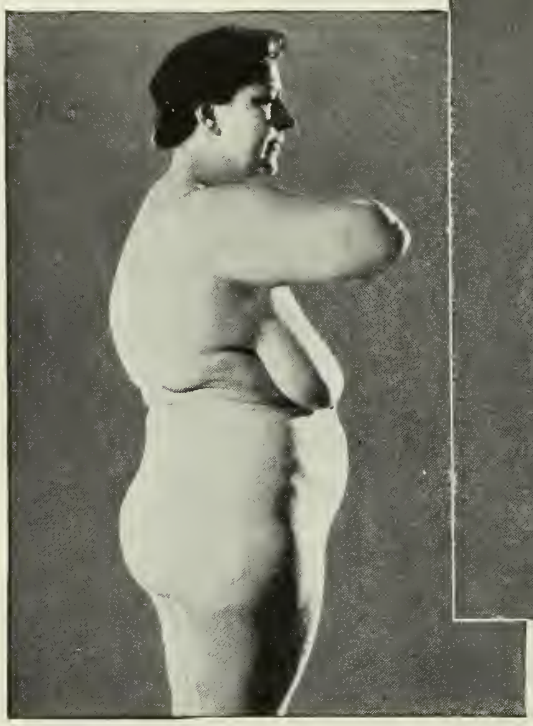
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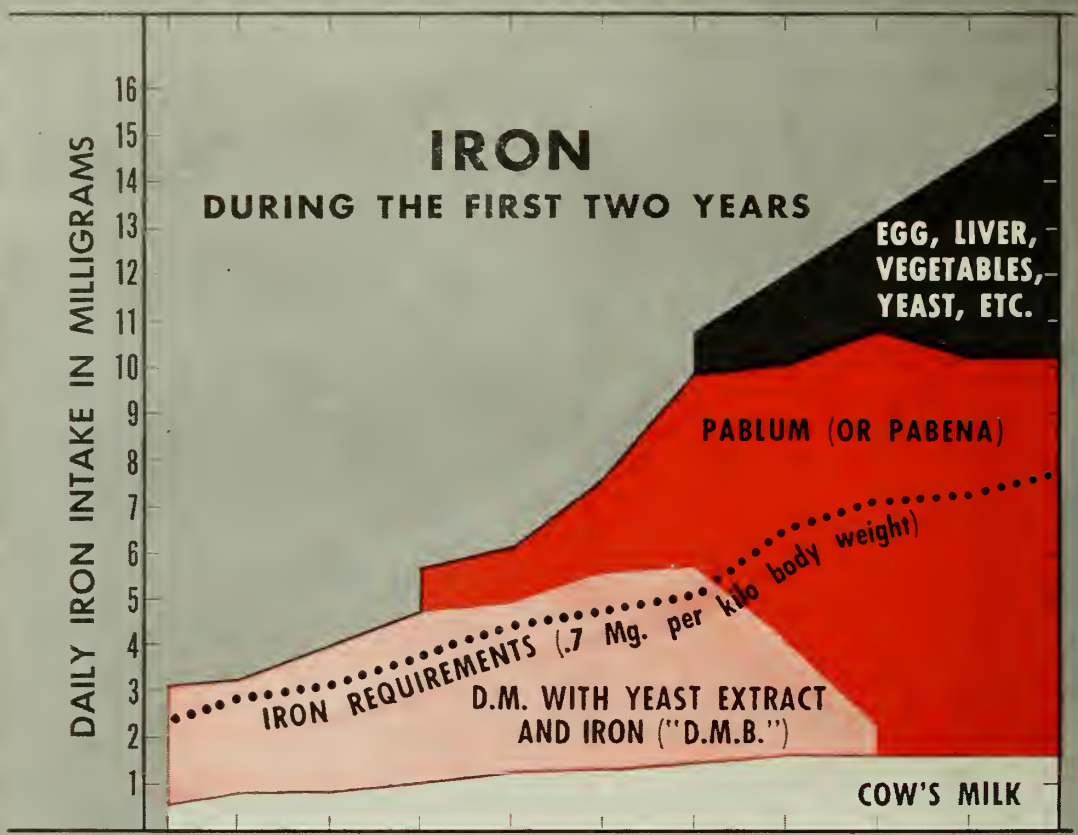
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More iron than the calculated requirement is needed because some iron is not utilized. In rapidly growing or poorly nourished infants, and in the presence of infection, the need for iron may be even greater than is indicated in this chart for normal infants.

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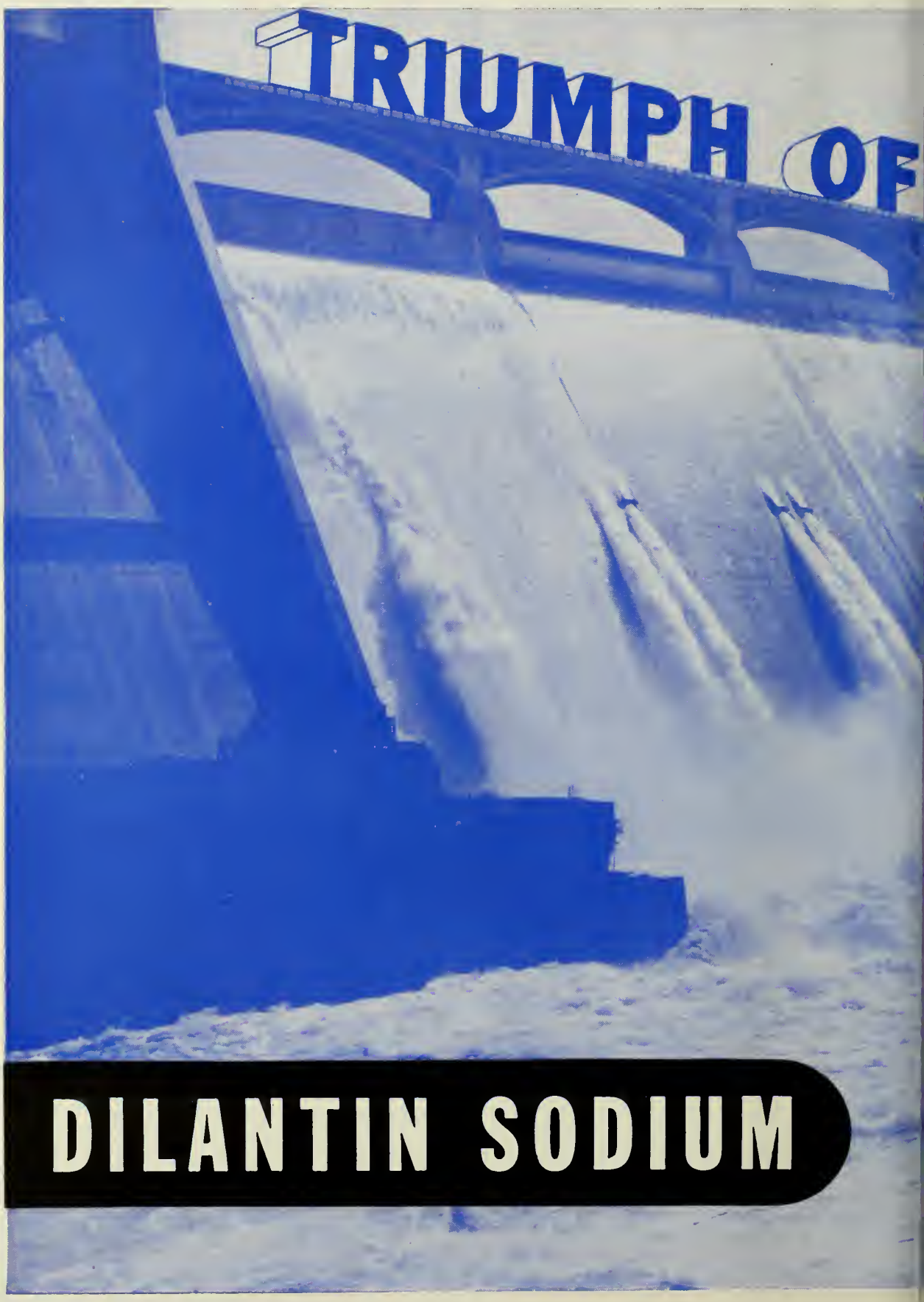
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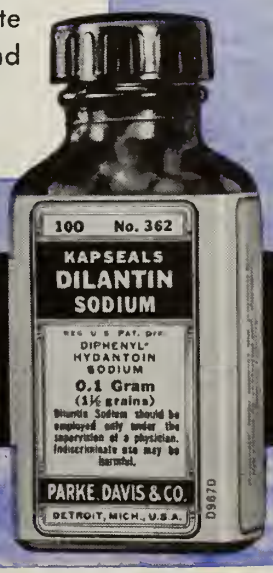
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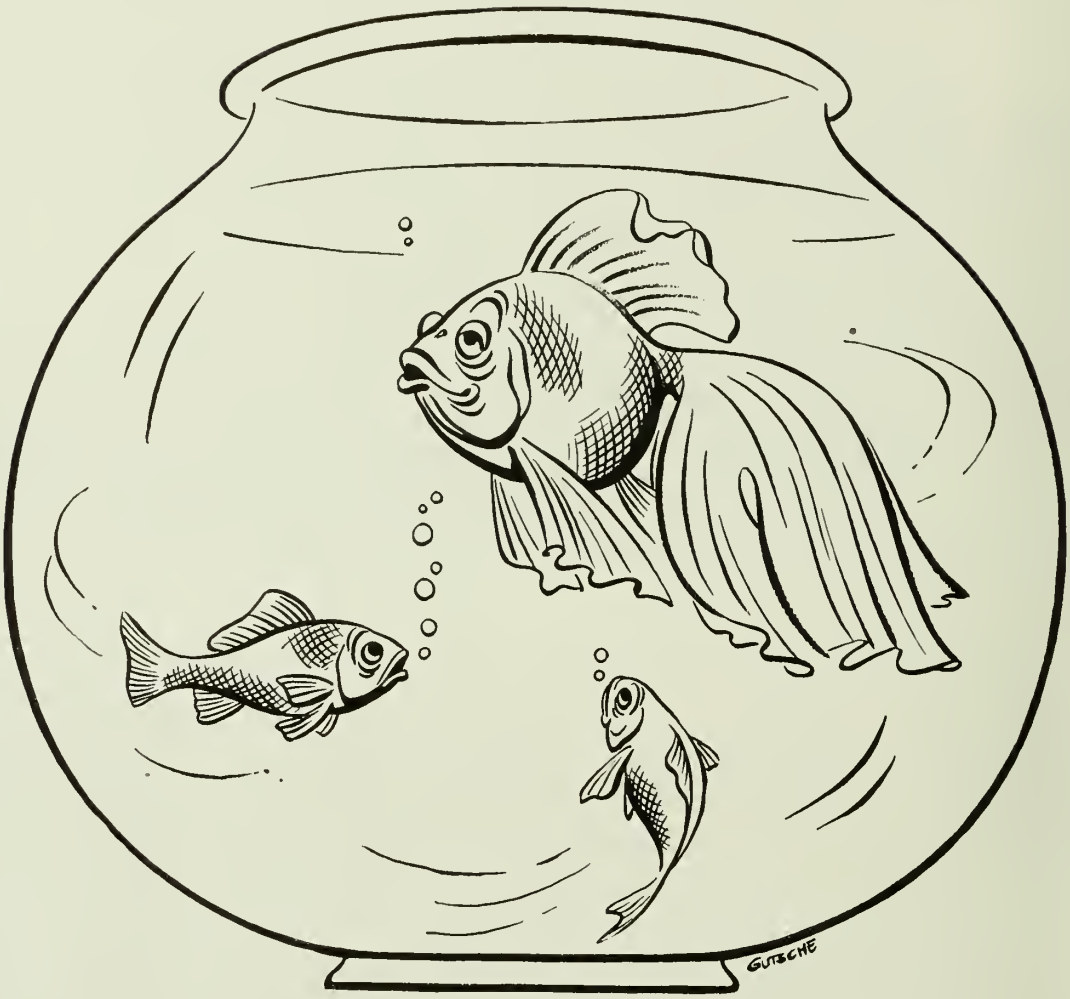
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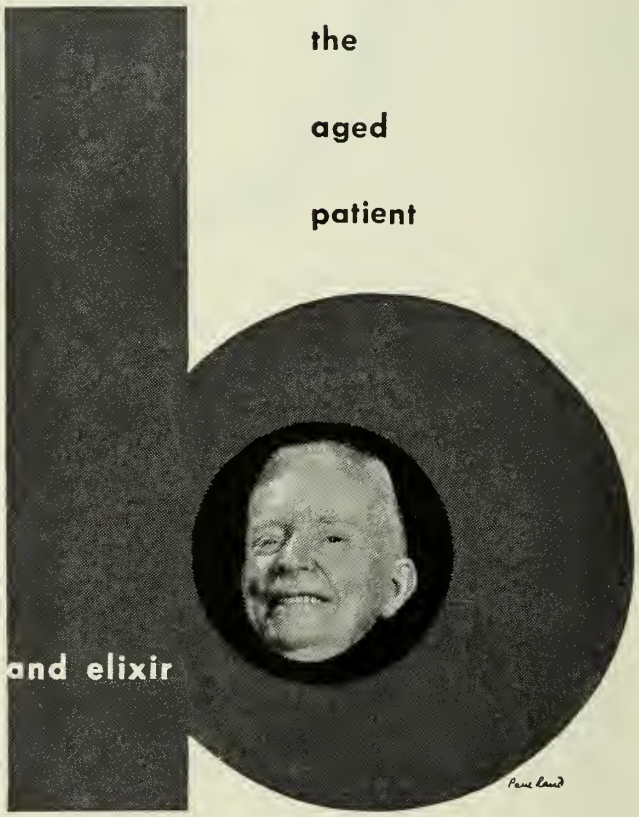


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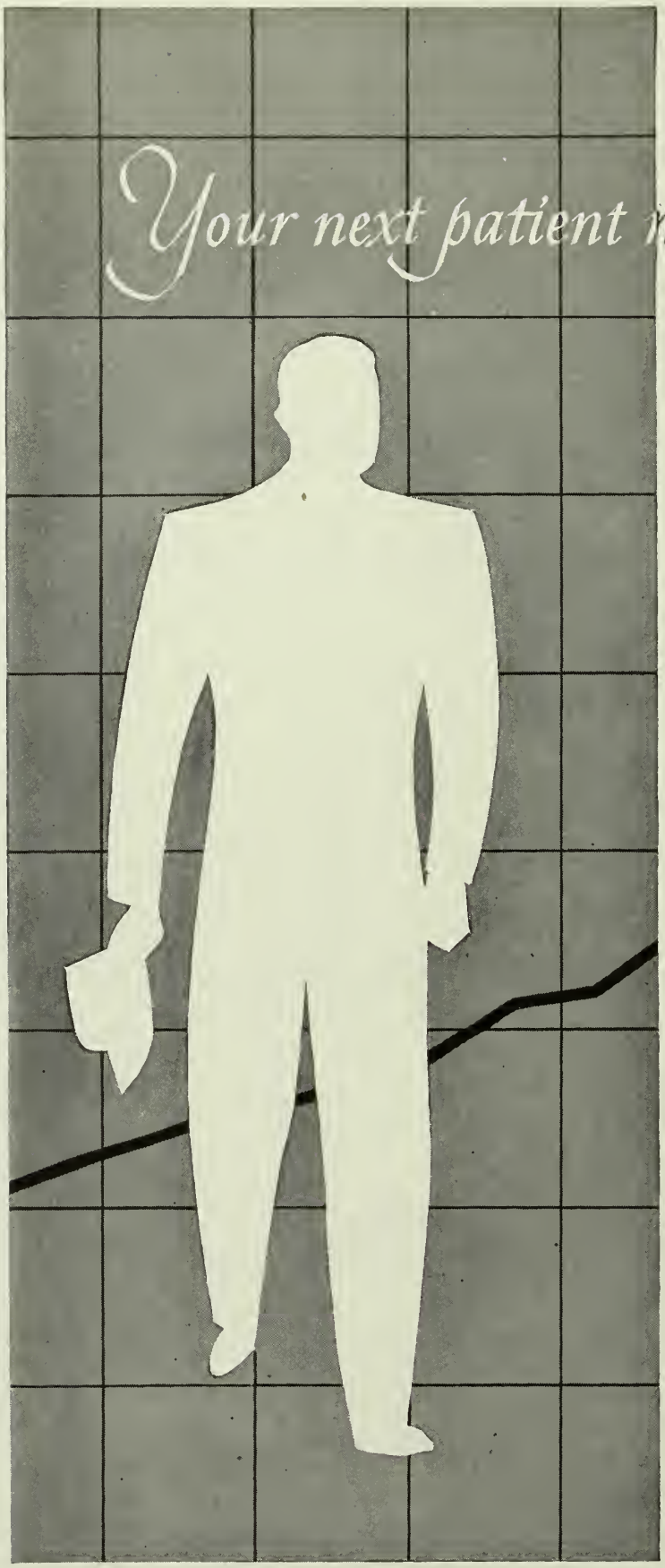
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BRONCHOSCOPY

ITS ROLE IN THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS

LT. COL. FORREST G. BELL, M.C., A.U.S.
AND
MAJOR BURNETT SCHAFF, M.C., A.U.S.
EXCELSIOR SPRINGS, MO.

"All has already been said; but as no one has listened, it is always necessary to start over again!" Andre' Gide.

During the last decade there has been a growing realization among students of pulmonary tuberculosis of the importance of tuberculous tracheobronchitis. It is now apparent that the presence of a specific bronchitis profoundly influences the results of collapse therapy. The more advanced the tracheobronchial disease, the less chance there is for the usual collapse procedures to succeed. For many years we have campaigned for the early recognition of the parenchymal lesion. The time has now come to campaign for early recognition of the tracheobronchial disease. In our experience, collapse boards in different parts of the country vary widely in their employment of bronchoscopy as an aid to diagnosis and treatment. It is only by the more frequent and intelligent use of the bronchoscope that one will be able to diagnose and treat the early stages of tuberculous tracheobronchitis. Careful studies have shown that from 10 to 15 per cent of moderately advanced or far advanced cases will have evidence of tuberculous tracheobronchitis on bronchoscopic examination. The roentgen ray will, of course, usually reveal the lesion in the lung parenchyma but the tracheobronchial disease is best ascertained by direct inspection. However, roentgen ray findings such as atelectasis or blocked cavities indirectly may indicate a bronchial lesion.

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To employ the bronchoscope rationally one must be acquainted with the indications and contraindications for this procedure. The indication is the suspected presence of a tuberculous tracheobronchitis. Many writers advocate doing routine bronchoscopic examinations prior to thoracoplasty to rule out the presence of that disease even when it is not suspected clinically. A few now also are advocating routine bronchoscopic examinations prior to pneumothorax therapy.[16] This will be discussed more fully in the body of this paper. The indications for bronchoscopy are best set forth in outline form as follows:

1. Persistent positive sputum which is inconsistent with clinical and roentgen ray findings.
2. Unexplained hemoptysis.
3. Prior to thoracoplasty.
4. Atelectasis.
5. Wheeze.[13]
6. Dyspnea out of proportion to the vital capacity.
7. Marked variation in sputum volume.
8. Prior to pneumothorax.[16]

Items 4, 5, 6, and 7 may be called the symptoms of obstruction.

It has been our experience that if involvement of the tracheobronchial tree is strongly suspected, but the initial bronchoscopic examination is negative, the lesion may become visible several weeks later on a repeated examination.

The physician who treats pulmonary tuberculosis should also be familiar with the contraindications to bronchoscopy. These are three in number:

1. Active tuberculous laryngitis.
2. An acute or severe hemoptysis.
3. The presence of an acute upper respiratory infection.

Parrish[11] states that a small hemorrhage is not a contraindication to bronchoscopy as a small amount of bleeding may aid in the location of a bleeding point. However, one of our patients was bronchoscoped during the time of a small hemoptysis be-

cause of frequent repeated pulmonary bleeding. As soon as the bronchoscope entered the trachea he had a profuse hemorrhage which obscured the visual field. We prefer to wait a week or two following a suspected pulmonary hemorrhage.

In our experience, if these indications and contraindications are respected generally, there are no severe reactions following bronchoscopic examination.[1] Occasionally the patient will have a sore throat for a day or two.[5] Since abandoning the use of pontocaine as a local anesthetic, we have had fewer reactions from local anesthesia.

Tracheobronchial tuberculosis is visible on direct inspection through the bronschoscope as an ulceration, a submucous infiltration or a stenosis of the bronchi. The stenosis represents the late stage of the disease and is feared because it can cause bronchiectasis or pulmonary suppuration distal to the block. The increasing employment of lobectomy and pneumonectomy in the treatment of pulmonary tuberculosis has given an opportunity to check the bronchoscopic findings with the examination of lungs removed from living patients. Prior to this the pathologic confirmation could come only from autopsy material. On examination of the lungs removed from living patients one finds that the earliest lesions consist of scattered tubercules in the mucosa or submucosa. This corroborates our bronchoscopic impression that the earliest lesions are submucosal in type.

It is well to remember that about 80 per cent of these lesions will heal if the parenchymal disease is controlled. Yet writers on tuberculous tracheobronchitis report mortalities ranging from 20 to 50 per cent. These deaths may be due to the parenchymal lesion, but the addition of the bronchitis increases the mortality about 25 per cent.[7] Or, stated in another way—20 per cent of the patients with tuberculous tracheobronchitis with a controlled parenchymal lesion will require additional therapy.

An evaluation of methods of treatment of the disease has been difficult. There are two schools of thought, one that advocates and one that opposes[14] local treatment. Our local treatment generally consists of the application of 30 per cent silver nitrate solution to the lesions every two weeks. In our experience this seems to promote healing more rapidly than using no local treatment. In addition to local treatment the patients receive strict bed rest without bathroom privileges, a nutritious, well balanced diet, a room with high humidity, minimum fluid intake of 3,000 cc. and postural drainage two to four times a day.[3]

It has also been our experience that the local lesion may relapse after it apparently has healed. This happened recently in three of our cases, but the recurrence was treated successfully in the same manner as the initial lesion. Others have reported the same experience and, for this reason, bronchoscopic examination should be repeated at monthly intervals until healing has been assured.

The patient whose parenchymal disease is associated with a lesion in the tracheobronchial tree presents a difficult problem in management. This is because there are two factors to consider when recommending collapse therapy: the parenchymal disease[12] and the bronchial disease. In all collapse procedures the bronchi are relaxed and shortened. If the bronchial lumen is already partially blocked by tuberculous bronchitis, collapse therapy further interferes with bronchial drainage. "Pneumothorax is the greatest, thoracoplasty the least offender in this respect."[16] In the presence of a marked stenosis, pneumothorax therefore is contraindicated. Phrenic nerve procedures generally are contraindicated because a paralyzed diaphragm prevents effective removal of bronchial secretions. It has been noted that if pneumothorax is induced in the presence of a tracheobronchial disease many complications may occur. For example, Shipman[9] reported a patient in whom the cavities enlarged during pneumothorax therapy and suggested that during treatment a check valve mechanism was formed when the bronchus, already narrowed by a tuberculous bronchitis, was further compressed by the pneumothorax. There also has been a high incidence of unexpandable lungs and bronchopleural fistula following pneumothorax induced in the presence of a bronchial disease. One of our patients had a rapid reexpansion of his lung following what appeared to be a successful pneumonolysis. This has been described by other authors who claim that the bronchial disease caused an obstructive emphysema.[8] It is because so many complications occur when pneumothorax is performed in the presence of tracheobronchial disease that we advocate routine bronchoscopy prior to that form of collapse therapy. Certainly bronchoscopy should be performed more frequently.

If the lesion in the parenchyma requires collapse therapy, thoracoplasty is the preferred procedure. A successful collapse will, in about 80 per cent of the cases, help clear up the tracheobronchial disease. This is understandable when one realizes that bronchitis usually is caused by the contact of the bronchial mucosa with sputum laden with acid-fast organisms.[15] However, if a tracheobronchitis were found on the contralateral side prior to undertaking thoraplasty, this operation would be contraindicated. If prior to thoracoplasty the information is obtained, through bronchoscopic examination, that a specific bronchitis exists on the ipsolateral side additional stages may be avoided. When the source of the positive sputum is in the bronchus rather than the parenchyma, additional stages of thoracoplasty will not eliminate the source. If the indication for thoracoplasty, or, for that matter, other collapse procedures, is not urgent, the local bronchial disease should be treated first.

As mentioned earlier in this paper stenosis of the bronchi is a feared complication of tuberculous tracheobronchitis. It has been feared because prior

to recent years, even thoracoplasty would give little hope for cure when performed in the presence of a bronchial stenosis. Alexander quoted by Streider[10] reports that following thoracoplasty 66 per cent of a series of thirty-eight cases had closed cavities and 8 per cent were dead. Fortunately, in recent years the technic for lobectomy and pneumonectomy has been improved so that those operations can be undertaken with greater safety. If the stenosis of the bronchus is so great that even repeated dilations failed to prevent stagnation of secretions behind the block, pneumonectomy should be performed. Thoracoplasty has a lesser value than pneumonectomy as during the stages of thoracoplasty the effective cough is often diminished and the patient thus becomes more toxic. At the present time the most frequent indication for pneumonectomy in pulmonary tuberculosis is partial or complete stenosis of a main stem bronchus with or without symptoms of obstruction. In an occasional case lobectomy may be done if the parenchymal lesion is completed by bronchial stenosis.[10] When stenosis occurs, attempts to treat it by dilation are usually unsuccessful. One of our patients developed stenosis of a bronchus following thoracoplasty. The toxic symptoms subsided temporarily after bronchial dilation only to recur in a few months. Pneumonectomy was then advised.

In this paper the importance of the early recognition of tuberculous tracheobronchitis and the effect that disease has on the selection of proper treatment for the parenchymal lesion has been discussed. In bronchoscopy there is a simple and relatively accurate method for the early diagnosis of tracheobronchial disease. It is now time to be more conscious of this diagnostic procedure and to employ it more often and intelligently as part of our effort to restore patients to good health.

Veterans Administration Facility.

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CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCE AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 77

PRESENTATION OF CASE

D. L., a 65 year old farmer, entered Barnes Hospital on March 27, 1945, and died the following day. The patient was semicomatose and the history was secured from his daughter and from his physician.

Chief Complaints.—Headache, nausea and vomiting.

Family History.—Irrelevant.

Past History.—The patient apparently had been in good health and worked hard on his farm. He had been known to have high blood pressure for the last six or seven years and during the last one or two years had had attacks of shortness of breath when working too hard. On these occasions he would go home and lie down and eventually would be relieved.

Present Illness.—The patient had had a head cold for about two weeks. On March 22, while he was recovering, his son, who was working with him, complained of headache, nausea and vomiting. The following day the son went to bed because his symptoms had increased to the point at which no food could be retained. His physician saw him and found the temperature to be 102 F. On March 25 the son's condition was much worse and on that day the, patient developed chilliness, headache, nausea and vomiting. The patient went to bed for part of the day. On the following day the son became unconscious and the patient's symptoms progressed rapidly and stiffness of the neck developed. He became irrational and increasingly obtunded and was sent to the hospital.

Physical Examination.—Temperature was 39 C., pulse 90, respiration 24 and blood pressure 218/114. The patient appeared to be acutely ill, semicomatose and febrile. A few small, petechial spots appeared over the left shoulder, the left leg and in the left sclera. The pupils reacted normally. The fundi showed moderate arteriosclerosis. The disks were normal. The left ear drum was injected about the periphery and along the handle of the malleolus. The lips were dry and cracked. There was moderate stiffness of the neck. The lungs were clear throughout. The heart was enlarged slightly to the left with the point of maximum impulse just outside the midclavicular line in the sixth interspace. The rhythm was regular; there were no murmurs. A third sound was heard at the apex. The peripheral vessels were firm. No definite ab-

normal findings were elicited in the abdomen. There was a bilateral hydrocele. The prostate was enlarged moderately. The reflexes were slightly hyperactive. Kernig sign was positive.

Laboratory Findings.—Blood count: red cells 3,640,000, hemoglobin 10 gms., white cells 20,160, differential count: juvenile forms 12 per cent, stab forms 30 per cent, segmented forms 55 per cent, lymphocytes 3 per cent. Urinalysis: albumin 2 plus, sugar 2 plus, many granular casts, many diplococci. Kahn reaction was negative. Lumbar puncture: first tap grossly bloody; second tap, spinal fluid appeared to be under reduced pressure which could not be measured. Spinal fluid was turbid; cell count was more than 20,000. Smear and culture showed Gram-negative diplococci. Blood chemistry: nonprotein nitrogen 33 mg. per cent, sugar 183 mg. per cent, total proteins 6.8 gm. per cent, albumin 4.0, globulin 2.8. Cephalin flocculation test was plus-minus. Venous pressure was 138 mm. NaCl.

Course in Hospital.—The patient was given paraldehyde intramuscularly repeatedly for sedation; penicillin (20,000 units) was administered intrathecally at 4:30 p. m. At 5:00 p. m. the pulse rate, which on admission was 90, rose to 170. It remained rapid and did not respond to carotid sinus pressure or to pressure over the orbit. An electrocardiogram revealed paroxysmal ventricular tachycardia. The blood pressure was 172/120. At 10:30 p. m. the pulse rate was 190, respirations 32 and occasional rales were heard in the lungs. At 1:10 a. m., the blood pressure was 112/92 and the pulse rate about 190. At 1:35 a. m., 1.2 mg. of digoxin were given intravenously. Electrocardiographic records were taken at very short intervals thereafter. At 2:15 a. m., 0.3 mg. of digoxin was administered. At 2:26 a. m. configuration of the electrocardiogram was seen to change and the rate dropped to 120. At 2:35 a. m. the blood pressure was 172/126 and the rate remained thereafter at about 110. The following day, the nonprotein nitrogen had risen to 53 mg. per cent and the fasting sugar was 171 mg. per cent. Many red blotches appeared all over the skin surface and the patient was completely obtunded. During the day the pulse rate rose gradually, the temperature reached 41.6 C., dyspnea and cyanosis became marked and signs of pulmonary edema appeared shortly before death. During the patient's stay large amounts of penicillin were given.

CLINICAL DISCUSSION

Dr. Harry Alexander: There is little doubt but that this man had meningococcal meningitis or, in other words, cerebrospinal fever. Do you agree with that, Dr. Harford?

Dr. Carl Harford: Yes, I agree with that. The organisms fermented dextrose and maltose which is characteristic of meningicocci.

Dr. Alexander: There are several interesting features in this case. Apparently the man's son had the same disease just before the onset in this patient. Dr. Harford, how infectious is this condition in comparison with measles or chicken pox?

Dr. Harford: An actual history of case to case contact is unusual. This infection usually is considered to be transmitted through carriers so that mere exposure to the infectious agent is not the only factor in the production of the disease.

Dr. Alexander: Dr. Wood, do you have any information on the possibilities of epidemics of this disease in army camps?

Dr. W. Barry Wood, Jr.: It does happen that when one case appears in a camp or in a barracks, others will follow, but in general the epidemiology of the disease is relatively spotty. If cases do occur in given areas at the same time, cultures of the nasopharynx usually show that a large number of persons are carriers, but only a few actually develop the disease.

Dr. Alexander: If a case does appear in a barracks, is the entire area isolated?

Dr. Wood: I think the present method of control is prophylactic chemotherapy. The practical way to prevent an epidemic is to administer to everyone in the barracks about 2 gm. of sulfadiazine a day for three days and the carriers then show no more organisms.

Dr. Gurney Clark: In answer to your original question, I think it should be pointed out that this disease is highly infectious. Cerebrospinal fever may not occur actively in a large number of cases in a given area, such as a barracks, but in studies by the Meningitis Commission, from 40 to 50 per cent of a group gave positive throat cultures. Over a period of several months more than 90 per cent had positive cultures of the throat without the occurrence of clinical manifestations.

Dr. Alexander: Is it true that the disease may manifest itself in the form of a common cold or an upper respiratory tract infection among carriers?

Dr. Clark: Apparently there is no relation between the incidence of positive throat cultures and the incidence of upper respiratory tract infections.

Dr. Alexander: Are there milder forms of illness that are not recognized but actually are due to the meningococcus?

Dr. Wood: That occasionally may happen but statistics do not indicate any relation between the carrier state and recognizable upper respiratory tract infection.

Dr. Alexander: Is it not true, however, that it is important if a carrier develops an upper respiratory tract infection?

Dr. Harford: Not uncommonly patients do have head colds preceding the onset of the meningeal manifestations, just as this patient did.

Dr. Alexander: How does the organism invade the meninges from the nasopharynx? Does it go up through the cribriform plate or through the blood stream to enter the meninges?

Dr. Harford: I do not know whether or not the organism goes through the cribriform plate but it

often is present in the blood stream before it appears in the meninges.

DR. ALEXANDER: According to Herrick and others, it always does.

DR. WOOD: I think there is good evidence that the organism almost always enters the meninges through the blood stream. The best evidence is the experimental work done by Dr. John Buddingh at Vanderbilt University in which he produced the disease in the chick embryo and studied the olfactory tract carefully with serial sections. He found that the organisms do not invade the olfactory tract but do invade the blood stream and then the meninges. Other evidence in favor of invasion via the blood stream is the occurrence of the disease in utero.

DR. ALEXANDER: Do any animals get this disease spontaneously or may they be infected with it?

DR. WOOD: The chick embryo under experimental conditions only.

DR. HARFORD: Mice also can be given a fatal septicemia.

DR. ALEXANDER: Dr. Harford, do you think it is unusual for a man 64 years of age to develop meningococcal meningitis?

DR. HARFORD: Without knowing the actual statistics, I should not consider it unusual on the basis of my own experience.

DR. ALEXANDER: Dr. Clark, what is your opinion?

DR. CLARK: I think it is unusual for an individual to develop the disease at that age. Most cases occur before the age of 50.

DR. ANDREW JONES: Actually, most cases occur before the ages of 10 to 15 years.

DR. ALEXANDER: The practical point is one of immunity. What is the immunity in man for this disease?

DR. WOOD: That problem is quite complex. However, there is increased immunity with increasing age.

DR. ALEXANDER: It is my thought that the age of 64 is unusually advanced for the development of meningoccal meningitis. It is assumed that the carrier state creates an active immunity with age. In this particular case there are two unusual features. The patient developed the disease from direct contact with the infection, which is most unusual, and he developed the infection at the age of 64, which is also uncommon. On admission to the hospital this man had the typical signs and symptoms of meningitis. He also had a purpuric eruption which is the reason this disease is sometimes called spotted fever or petechial fever. Dr. Moore, what is the explanation of the purpura?

DR. CARL V. MOORE: It apparently has to be explained on the basis of an injury to the capillaries, but exactly how it occurs is not too well understood. The platelets are usually normal when these patients have purpura. To my knowledge, no one has studied the capillary fragility in such individuals and I think it is only possible to say that there is damage to the capillaries which permits purpura to occur at the point of a small thrombus.

DR. ALEXANDER: Is there a distinction between the capillary damage of Rocky Mountain spotted fever and that which occurs in meningoccal meningitis?

DR. ROBERT MOORE: There is a difference histologically. I believe it is significant that the meningococci are found in these lesions in the skin so that it is probably a lesion of the capillaries caused by the meningococci. Thrombi in the capillaries are not found with any consistency.

DR. ALEXANDER: Are there further questions on this point?

DR. ROBERT MOORE: What is the status of scraping one of these purpuric lesions, finding the organism in a stained smear and thus making the diagnosis? Is that a recognized procedure?

DR. WOOD: Yes, that is a recognized procedure. I do not think it is as satisfactory as taking a blood culture but it is used.

DR. ALEXANDER: How frequently are meningococci found in the spinal fluid, Dr. Harford?

DR. HARFORD: Meningococci are found quite frequently in the spinal fluid.

DR. ALEXANDER: If a spinal fluid had a high polymorphonuclear cell count and no meningococci could be found, would you think that the case was meningococcal meningitis?

DR. HARFORD: Yes, if the rest of the clinical picture was consistent.

DR. ALEXANDER: I did not realize that it was possible to observe organisms in smears so frequently.

DR. WOOD: It depends upon how the smear is made. It is not advisable to use the Gram stain. The methylene blue stain is more satisfactory. Also, after spinning down the fluid, the sediment should be incubated over night and should then be examined.

DR. ALEXANDER: These organisms are autolytic, which is another reason for the difficulty in locating them in stained smears.

DR. HARFORD: Another difficulty encountered in identifying meningococci in a smear is the fact that pneumococci readily become Gram-negative and are often mistaken for meningococci.

DR. ALEXANDER: That is quite true. Are there any further questions?

DR. JOHN SMITH: How often can meningococci be seen in smears taken from the purpuric spots?

DR. B. Y. GLASSBERG: One series reported a finding of meningococci in 90 per cent of the cases when a smear was taken from a purpuric spot.

DR. ALEXANDER: This patient was given a great deal of penicillin which apparently was not effective. Dr. Wood, is penicillin the conventional treatment?

DR. WOOD: No. Sulfonamide chemotherapy is the accepted form of treatment at the present time. Penicillin was given in this case, however, because the prognosis was so poor.

DR. GLASSBERG: Would it have been safe to give

this patient sulfonamide drug in view of the compromised condition of the kidneys?

Dr. Wood: It was advisable in this case to avoid sulfonamide.

Dr. Alexander: Another interesting feature of this case was the irregularity of the patient's heart. On admission this man showed some signs of cardiovascular damage. There was a history of hypertension for a few years before admission. The heart was enlarged; blood pressure reached high levels on overexertion; shortly after admission the pulse rate increased considerably and a third heart sound was heard. Dr. Smith, is there any significance in a third heart sound?

Dr. Smith: I think there is. Usually a third heart sound is spoken of as a gallop rhythm. It is loud, diastolic in time and occurs most frequently in hearts that are not strictly normal. There are two schools of thought as to the origin of the diastolic third heart sound. One school believes that it arises from the closing of the mitral valve some time during diastole. The other school holds that the third heart sound is due to rapid, momentary ventricular distention occcurring usually in early diastole, at a time when maximum ventricular filling is going on, and that the sound occurs when the ventricle suddenly expands. This school feels that the third sound represents a lack of myocardial tone, indicating myocardial disease. There is, however, one thing certain about the diastolic third heart sound—in the presence of other evidences of heart disease it is a significant prognostic sign, usually indicating serious myocardial damage.

Dr. Alexander: Dr. Massie, since the irregularity in this case was proven on the electrocardiogram to be paroxysmal ventricular tachycardia, is that a sign of much significance? As I understand it, auricular paroxysmal tachycardia is of no particular significance but I am uncertain about the paroxysmal ventricular tachycardia.

Dr. Edward Massie: Paroxysmal ventricular tachycardia is an arrhythmia which usually is associated with serious heart disease.

Dr. Alexander: In this case, frequent observations were made electrocardiographically, digoxin was administered intravenously and within an hour after the digoxin was given the irregularity of the heart stopped. Before the drug was administered, the patient's blood pressure was elevated, he had wide pulse pressure and, during the course of the irregularity, there was a small pulse pressure with a rapid rate. After digoxin was given, the blood pressure dropped considerably and quite rapidly. With a tachycardia, such as this patient had, a small pulse pressure would be expected, but is it usual for the blood pressure to drop as it did in this case?

Dr. Massie: I think the drop in blood pressure is simply a manifestation of the onset of shock. The first record on this patient calls for a diagnosis of ventricular tachycardia for which the reason was quite obvious. The QRS complex indicates that the patient had the ventricular extrasystoles for at least a month before admission. It is notched and the interval is at least .12 (normal being .10). Also in ventricular tachycardia there is a change in the axis deviation. We can not be sure that that is the case in this patient, because there is no prior record, but there is less axis deviation than normal. The patient was given 1.2 mg. of digoxin which brought about an improvement in the QRS complex over a period of time.

Dr. Alexander: What is the rationale for giving digitalis to a patient with paroxysmal ventricular tachycardia?

Dr. Massie: Ordinarily in ventricular tachycardia, digitalis is not administered because it easily could be toxic enough to produce ventricular fibrillation which means certain death. The usual procedure is to sedate the patient with some strong sedative and then to administer quinidine in increasingly large doses. However, there are some cases in which digitalis can be used.

Dr. Smith: The principal reason digitalis was given to this patient was to dispel the arrhythmia that existed as quickly as possible. Quinidine also can be used in situations of this kind. However, it is a dangerous drug because it does produce, in some individuals, a high degree of intraventricular block. In this patient digoxin was administered with the idea that the refractory period of the myocardium would be prolonged and that the arrhythmia which was arising in a focus in the base of the heart would be broken.

Dr. Edward Reinhard: Dr. Alexander, do you think the patient still had meningitis when he died or was that under control?

Dr. Alexander: Yes, I think he still had meningitis when he died. He still had a high fever.

Dr. Reinhard: Would you be surprised if there were no organisms found after death?

Dr. Alexander: If that were the case, some other infection, like pneumonia, would be necessary to explain the high fever.

Dr. Keith Wilson: I would like to suggest that the patient had a Waterhouse-Fredrichsen syndrome. He had marked tachycardia, there was a great increase in his respiratory rate and pulse rate, a sudden fall in blood pressure and signs of increasing purpura.

ANATOMIC DIAGNOSIS*

Acute purulent leptomeningitis.
Multiple acute peptic ulcers in the stomach.
Atrophic gastritis.
Acute hemorrhagic esophagitis.
Focal acute interstitial myocarditis.
Arteriolar nephrosclerosis, slight.
Hypertrophy and dilatation of the heart (625 grams).

*This is not the printer's or the proofreader's error. It is to assist the reader who wants to make up his own mind about the diagnosis but whose curiosity is too consuming.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: From a clinical standpoint most of the anatomic findings were of interest, not on the basis of the simple meningitis but on the basis of the complications and other diseases from which this man suffered.

The meningitis involved the brain and the spinal cord; possibly related to that condition were the acute ulcers in the stomach, involving the mucosa and the submucosa, with hemorrhage into the gastrointestinal tract. In the same category was the lesion of the esophagus, which was thick, firm and edematous in appearance. This patient had cardiovascular disease in a moderate grade as exemplified in the arteriolar nephrosclerosis and in the enlargement of the heart. The fact that the heart did fail is demonstrated by the finding of congestion and edema of the lungs.

A microscopic section of the brain taken from over the convexities shows the exudate in the subarachnoid space to be composed largely of polymorphonuclear leukocytes with a few mononuclear cells and plasma cells and a large amount of fibrin in some places as though the space were filled with a fibrinous exudate.

A section of the spinal cord shows much less exudate than in the brain, as well as a different character of the cells. There are few polymorphonuclear cells, and many are mononuclear. There is not as much accumulation of fluid and fibrin in the subarachnoid space over the cord as in that over the convexities.

This observation was made without knowledge of the administration of penicillin. As I listened to the history I wondered how far the penicillin would penetrate in a meningitis with a fibrinous exudate in the subarachnoid space. There was certainly a difference in the type of cellular reaction in the upper part of the cord, from which a section was taken, and the cellular reaction in the convexities over the hemispheres. In the hemispheres it was clearly an acute meningitis, whereas in the spinal cord it was decidedly subacute meningitis with a different type of cell. Dr. Wood has assured me that penicillin does pass, in a matter of minutes, from the lumbar spine to the hemispheres. Therefore, I must assume that there is some other reason for the difference in the type of reaction.

A section from the hemispheres was stained for bacteria but it was not possible to identify any bacteria, either intracellular or extracellular.

In a section from the cerebellum it is seen that the inflammatory process was invading the cerebellum and there are polymorphonuclear leukocytes scattered all through the white matter of the cerebellum.

From a section taken from the edge of one of the stomach ulcers it is evident that this man had an atrophic gastritis before he developed the meningeal infection, as shown by the decrease in the number of glands in the mucosa, by the increased number of leukocytes and plasma cells and by the focal dilatation of glands.

A section of the ulcer shows the lesion involving the submucosa. There is acute necrosis and the vessels immediately adjacent are filled with recent thrombi. There is hemorrhage into the tissue, a large amount of edema, and infiltration of cells. This is an acute peptic ulcer.

A section of the esophagus shows necrosis of the mucosa and heavy cellular infiltration. The picture is much the same as in the stomach. The lesion is probably due to gastro-esophageal malacia, which is a type of lesion occurring during the last hours of life. I think the lesion, in this case, occurred some hours before, perhaps even days before, because of the intensity of the inflammatory reaction and the ulceration of the mucosa. There is marked change in the muscle of the wall of the esophagus, as well as intracellular edema and necrosis of some of the muscle fibers. This lesion occurs most commonly in those who vomit in the last twenty-four to forty-eight hours of life. It is occasionally seen in those who have not vomited.

A representative section of the cortex of the kidney displays conspicuous tubular damage with loss of nuclei and swelling of the cytoplasm; in other words, an acute nephrosis or an advanced cloudy swelling, and slight fatty degeneration of the tubule. There are no significant changes in the glomeruli beyond those related to the arteriolar disease. There is little fibrosis and little cellular infiltration in the kidneys.

In the liver, the fatty change was limited to the central zone. This man had a central fatty metamorphosis of the liver associated with early necrosis of the cells. The necrosis was related to the infectious disease and to the cardiac failure.

There is no infarct in the myocardium but in some regions there are edema of the tissue and infiltration with polymorphonuclear leukocytes indicating that this man did have an acute focal interstitial myocarditis, possibly in association with the meningococcal infection. The lung shows quite well the peripheral type of atelectasis.

CASE 78

PRESENTATION OF CASE

J. A., a 49 year old dentist, entered Barnes Hospital on June 5 and died July 22, 1944.

Chief Complaints.—Chills, fever, abdominal pain, loss of weight and enlarged lymph nodes.

Family History.—Father died at the age of 63 from cancer of the liver; mother living but has cancer of the bladder.

Past History.—The patient had been in singularly good health with no record of any serious illness or operation. There was nothing significant in his systemic review other than obesity.

Present Illness.—Four years previous to admission, while feeling perfectly well, the patient noted a small lump on the left side of his face. This grad-

ually enlarged. A diagnosis of mixed tumor of the parotid gland was made and the patient was advised to have it removed surgically. He refused but submitted to roentgen ray treatment and, after three exposures, the mass disappeared. There were no further symptoms until about one year prior to admission when there was a gradual onset of fever, malaise and generalized lymph node enlargement. He entered a hospital where a lymph node biopsy was performed but no definite diagnosis was established. The patient received deep roentgen ray therapy to various parts of his body and he felt better until four months previous to admission when chills and fever returned associated with nausea, vomiting and generalized abdominal pain. Weakness and loss of weight became progressive and, three weeks before admission, the patient went to the Mayo Clinic because of persistent abdominal pain and nausea. There he was told that his spleen was enlarged, for which roentgen ray therapy was advised. He was given sulfadiazine for ten days. He returned to St. Louis for further observation and treatment. He had lost 50 pounds during the last year of his illness.

Physical Examination.—Temperature was 37.8 C., pulse 90, respirations 20, blood pressure 150 100. Although the patient showed evidence of weight loss, he was still moderately obese. He seemed chronically ill. There was one smooth, resilient lymph node measuring 1.5 cm. in length in the left posterior cervical region. A similar node was palpable in each axilla and numerous smaller ones were felt in the inguinal region. None of these was tender. The sclerae were slightly yellow. The eyelids were puffy and the eyes seemed somewhat protuberant. The pupils reacted well to light and accommodation. The disks were normal; there was some narrowing of the arteries. The upper respiratory tract appeared normal. There were a few crackling rales in both bases of the lungs. The heart was not enlarged. The rhythm was regular. There were no murmurs or accentuations. The abdomen was protuberant. The liver edge was firm and sharp and was felt 8 cm. below the right costal margin. The surface felt smooth. The spleen was palpable 5 cm. below the left costal margin. The consistency was not stated. There was no evidence of fluid in the abdomen.

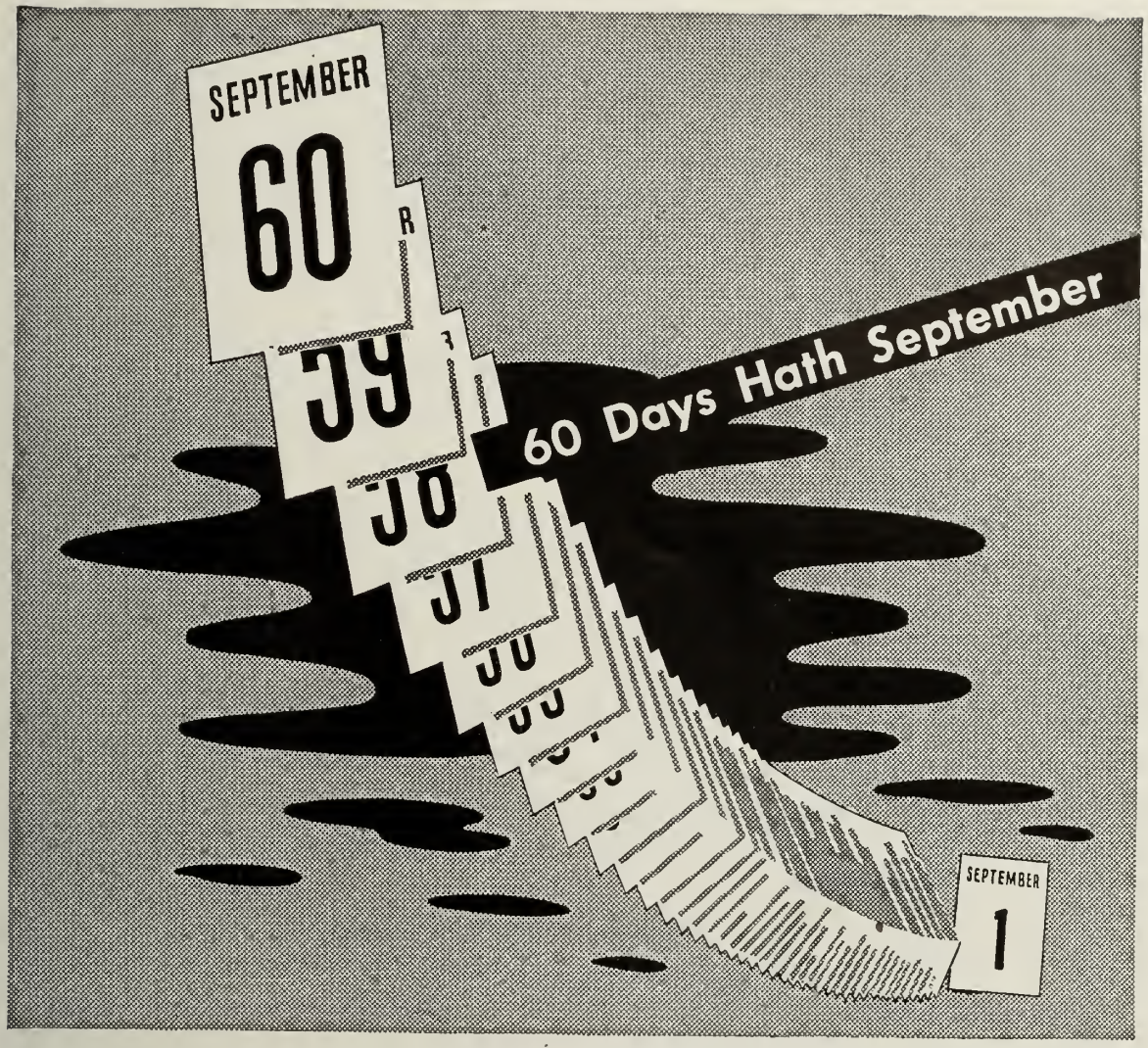
Laboratory Findings.—Blood count: red cells 3,160,000, hemoglobin 95 gm., white cells 4,650, differential count: basophils 1 per cent, eosinophils 2 per cent, stab forms 5 per cent, segmented forms 68 per cent, lymphocytes 19 per cent, monocytes 5 per cent, platelets 140,000. Urinalysis: albumin trace, otherwise normal. Stool examination was normal. Kahn reaction was negative. Blood phosphorus 3 mg. per cent, alkaline phosphatase 8 Bodanski units, and acid phosphatase 4.0 units. Cephalin flocculation test was negative. Blood culture showed no growth. Basal metabolic rate was plus 29. Electrocardiogram showed left axis deviation. Roentgenograms of the chest were indeterminate. The spine showed marked hypertrophic change about the margins of the lower dorsal and the fourth lumbar vertebrae. There were numerous circular dense bodies about 3 cm. in diameter scattered along the course of the pelvic colon, having the characteristics of barium-filled diverticula.

Course in Hospital.—A biopsy of a cervical lymph node was made and was reported on by three separate observers as follows: "Hodgkin's disease," "reticulum cell sarcoma," and "infectious granuloma." Smears and guinea pig inoculation from the excised lymph node were negative. Further roentgen ray treatment was omitted because of the low white blood count. Sulfamerazine was given and transfusions of whole blood were administered repeatedly. The red blood cells remained at a level of about 3,000,000 for the first two weeks, but gradually diminished to 1½ million and 4.9 gm. of hemoglobin. The white cells gradually diminished and remained less than 1,000 per cu. mm. and became as low as 200. The differential count varied but little and occasional "C" myelocytes appeared in the peripheral blood; at one time these were as high as 12 per cent. Smears of bone marrow revealed only hyperplasia. At first there was mild fever but gradually it began to take great swings and at times the temperature would rise from normal to 40 or 41 C. twice each day. Chills on these occasions would last as long as four hours. Penicillin therapy was begun with no appreciable results. On June 30 the liver and spleen both became much larger and ecchymoses appeared on the left foot and on both arms. This was soon followed by showers of petechial spots which became almost confluent. Atabrine therapy was instituted without effect. Ptosis of the right eyelid developed.

Further laboratory studies during the patient's hospitalization were as follow: blood nonprotein nitrogen 16 mg. per cent, sugar 94 mg. per cent. As the temperature rose, a heavy trace of albumin appeared and persisted in the urine. Occasionally traces of blood were found in the stools. Agglutination tests were positive for E. typhi in a dilution of 1 to 640, and for paratyphoid B, 1 to 40. The platelet count dropped to 9,200. The patient developed some cough and a small amount of bloody sputum which was negative for acid-fast organisms. A gastrointestinal roentgen ray series was indeterminate. During the last few days, small doses of roentgen ray therapy were administered. The patient's general condition gradually deteriorated and he died quietly.

CLINICAL DISCUSSION

Dr. Harry Alexander: This patient, four years before admission, had a tumor on one side of his face. He consulted Dr. Barrett Brown who diagnosed it a mixed tumor of the parotid gland and advised surgical removal of the tumor. The patient refused to have the operation and instead received a few roentgen ray treatments which resulted in the disappearance of the tumor. Three years later



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**Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154*
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60
Proc. Soc. Exp. Biol. and Med., 1934, 32, 241
N. Y. State Journ. Med., Vol. 35, 6-1-35, No. 11, 590-592.

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this man became ill again with fever, malaise and enlargement of the lymph nodes. The question arises as to whether or not the patient did have a mixed tumor of the parotid gland and, if he did, whether or not it later returned. It is my understanding that mixed tumors of the parotid gland are radiosensitive and they may not reappear, either after surgery or roentgen therapy, for some years. Dr. Reinhard, do you believe that, if this were a mixed tumor of the parotid gland, this is all one picture?

DR. EDWARD REINHARD: No. I believe that the second disease was something else. I think we can be almost certain that if this were a tumor of the parotid gland, there was no connection between the original lesion and the terminal illness.

DR. ALEXANDER: I would agree with that.

DR. DONALD BOTTOM: This patient had three roentgen ray treatments in 1939. They were about a week apart with 200 roentgens in the first two treatments and 100 roentgens in the last treatment. The tumor completely disappeared in that time and I doubt if a mixed tumor of the parotid gland would disappear so rapidly.

DR. ALEXANDER: Then you believe that the existing tumor was extremely radiosensitive and that a mixed tumor of the parotid gland would not be that sensitive.

DR. BOTTOM: Radiotherapy is the conventional treatment in tumors of the parotid gland but they do not disappear as rapidly as this patient's did.

DR. REINHARD: Another reason why it is almost certain that the terminal lesion was not a metastatic lesion, if a mixed tumor of the parotid gland originally existed, is that metastases from a mixed tumor are quite unusual. McFarlane in Philadelphia studied 400 cases of mixed tumor of the parotid gland and 100 of those patients had recurrences after a period of forty years. Of the 100 cases, 98 were local recurrences and in only two cases were there any metastases, and these were in the lymph nodes only.

DR. ALEXANDER: At the time of the second illness a biopsy was made of a lymph node from which no diagnosis was made. The question is, would it be possible to miss leukemia, lymphosarcoma or tuberculosis, or are the characteristic cells of these diseases usually obvious, Dr. Moore?

DR. ROBERT MOORE: Ordinarily they would be quite obvious, although I do think it is possible to fail to make a correct diagnosis from a biopsy, especially in the early stages of these diseases.

DR. ALEXANDER: Would it be possible to confuse a small cell lymphosarcoma or leukemia with anything else?

DR. ROBERT MOORE: Yes. For example, it would be difficult to tell the difference between an early Hodgkin's disease and a leukemia.

DR. ALEXANDER: On admission to this hospital, several diagnoses were made. One was Hodgkin's disease, another was infectious granuloma and another was reticulum cell sarcoma. Dr. Reinhard, which of these diagnoses do you favor?

DR. REINHARD: I would list Hodgkin's disease first and I would say that reticulum cell sarcoma is the least likely.

DR. ALEXANDER: What are your reasons for that opinion?

DR. REINHARD: In the first place, chills and fever occur in both reticulum cell sarcoma and in Hodgkin's disease but they occur early in Hodgkin's disease and quite late in reticulum cell sarcoma, as a general rule. This patient's first symptoms of chills and fever are more in favor of Hodgkin's disease. In the second place, a splenomegaly occurs in only about 21 per cent of the cases of all types of lymphosarcoma. This patient had a large spleen, which again would be more in favor of Hodgkin's disease than of reticulum cell sarcoma. It is also possible to develop leukopenia and anemia in both Hodgkin's disease and in reticulum cell sarcoma. Anemia occurs early in Hodgkin's disease and it is less striking than in reticulum cell sarcoma.

DR. ALEXANDER: What about the diagnosis of infectious granuloma? I presume this diagnosis means the granuloma that contains giant cells and is typified by tuberculosis, syphilis, mycoses and protozoan and metazoan infection. Does that quote your book accurately, Dr. Moore?

DR. ROBERT MOORE: Yes, but I do not believe that giant cells are an essential part of all granulomata. When I made the diagnosis of infectious granuloma on the biopsy, it was to indicate that this was an inflammatory disease, producing focal lesions but, on the basis of the histologic appearance, it was not possible to select a causal agent. In other words, it was not tuberculosis, nor syphilis, nor any of the usual granulomatous lesions.

DR. ALEXANDER: If a patient has a generalized lymphadenopathy, other than tuberculosis or syphilis, would it be unusual, clinically, to develop a generalized infectious granuloma?

DR. ROBERT MOORE: No. There are several diseases of this type, notably brucellosis.

DR. ALEXANDER: Dr. Reinhard, what infectious granulomata involve lymph nodes, either secondarily or primarily?

DR. REINHARD: The etiology of most of the infectious granulomata is not known. In other words, there is a granulomatous lesion which looks infectious but the causal agent is not usually known. Most of them are catalogued as infectious granulomata of unknown etiology.

DR. ALEXANDER: Dr. Wood, do you have a suggestion?

DR. W. BARRY WOOD, JR.: I would like to make a suggestion of histoplasmosis in this case. I think most of the findings in this case are compatible with the diagnosis of Hodgkin's disease but the features of this case, such as the leukopenia, the anemia, the lymphadenopathy, the large spleen and liver, the fever and the chills are suggestive of histoplasmosis.

Dr. Reinhard: Is it usual for a case of histoplasmosis to present a blood picture like that seen in this case?

Dr. Alexander: This patient had sulfa drugs and roentgen ray which may have altered the blood picture.

Dr. Wood: Histoplasmosis also involves the bone marrow.

Dr. Keith Wilson: Is histoplasmosis radiosensitive?

Dr. Alexander: That is a good point. I do not know the answer. Perhaps Dr. Bottom can help us.

Dr. Bottom: The lesions of histoplasmosis are not radiosensitive to my knowledge.

Dr. Moore: If this were histoplasmosis, organisms within the endothelial cells should have been seen in the section.

Dr. Alexander: Dr. Moore, is there a good reason why infectious granulomata should be exquisitely radiosensitive?

Dr. Moore: No.

Dr. Wood: Dr. Alexander, were the lesions other than the tumor of the face radiosensitive? If so, I would agree that histoplasmosis is not a likely diagnosis.

Dr. Alexander: Yes. This patient received roentgen ray treatment at St. John's Hospital and was well for eight months. He then went to the Mayo Clinic and received roengen ray treatments which temporarily helped him. This would be characteristic of Hodgkin's disease or lymphosarcoma.

Dr. Wood: Then the only thing that stops one from making a diagnosis of lymphosarcoma is Dr. Moore's interpretation of the biopsy.

Dr. Alexander: That is correct. If there are no further suggestions, I think we should discuss the hyperplastic bone marrow and the hypoplastic peripheral blood picture. The white cell count fell rapidly, the red cells were reduced markedly and the platelets numbered only 9,000. There was also a marked hypoplasia of the peripheral blood. Dr. Reinhard, would you say that that is a feature of Hodgkin's idsease?

Dr. Reinhard: Yes. It is not common but it has occurred in a number of cases.

Dr. Alexander: In those cases, was there invasion of the bone marrow with the tissue of the granuloma?

Dr. Reinhard: It has been demonstrated in some cases that there was extensive invasion of the bone marrow by tissue of the granuloma.

Dr. Alexander: Dr. Bottom, is Hodgkin's disease as radiosensitive as lymphosarcoma?

Dr. Bottom: Yes, it is.

Dr. Reinhard: I think something should be said about the gastrointestinal symptoms of this patient. He had abdominal pain, nausea, vomiting, and blood in his stool.

Dr. Alexander: One classification of Hodgkin's disease divides the lesions into various forms. There is a gastrointestinal type, a retroperitoneal type and others. Therefore, in Hodgkin's disease there may be gastrointestinal symptoms related to lesions active in the gastrointestinal canal.

Dr. Reinhard: This patient's gastrointestinal radiographs were negative. Do you think lesions in the gastrointestinal tract will be found at autopsy?

Dr. Alexander: I think it would be possible to have a lesion of the gastrointestinal wall with a negative gastrointestinal roentgen ray series. In Hodgkin's disease of the retroperitoneal nodes, abdominal pain and back pain are characteristic. However, blood in the stool is not characteristic.

Dr. Reinhard: For that reason, I believe that this patient had a lesion in the mucosa of the stomach.

Dr. Harold Scheff: I think that it would be more probable for a lesion to be in the small intestine than in the stomach. The blood in the stool was bright red, which should rule out a lesion of the upper gastrointestinal tract.

Dr. Alexander: In lymphosarcoma the lesion is usually of the stomach or of the mesentery around the rectum or the sigmoid.

Dr. Wood: Dr. Alexander, what is the final clinical diagnosis?

Dr. Alexander: Hodgkin's disease.

ANATOMIC DIAGNOSIS*

Hodgkin's sarcoma involving the stomach with extensive ulceration, the lungs, liver, spleen, tracheobronchial and preaortic lymph nodes.

Extension of the tumor from the wall of the stomach into the body and tail of the pancreas.

Atrophy and fibrosis of the bone marrow.

Ascites (5,800 cc.).

Hydrothorax (1,000 cc. on the right and 800 cc. on the left).

PATHOLOGIC DISCUSSION

Dr. Robert Moore: The gross anatomic findings present a problem which may be summarized as follows: An explanation must be found for the presence in the wall of the stomach, in the lungs, in the liver, in the spleen and in the lymph nodes of irregular nodules of firm, grayish white tissue. It might be Hodgkin's disease because the tissue of this disease is firm and grayish white and cuts with increased resistance. It might be reticulum cell sarcoma, although the description is not quite satisfactory for this disease in that firmness of the tissue is not a usual feature. The tissue in this disease is usually grayish white and relatively soft. That is especially true with the small lymphosarcomas. The reticulum cell sarcoma might be somewhat firmer than the smaller lymphosarcomas but certainly not as firm as the tissue of Hodgkin's disease. Against Hodgkin's disease is the fact that all the nodules were about the same. Rarely is there uniformity in the character of the nodules in the terminal stages of Hodgkin's disease. Some lymph nodes will be soft and on cut section will bulge

*This is not the printer's or the proofreader's error. It is to assist the reader who wants to make up his own mind about the diagnosis but whose curiosity is too consuming.

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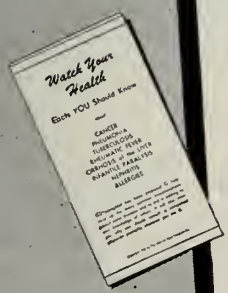
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*U. S. Summary of Vital Statistics, 1942.



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from beneath the capsule. Other lymph nodes will be firm and on cut section apparently are composed only of fibrous tissue. The outstanding characteristic of Hodgkin's disease at the time of death is the great variation of the tissue. I do not think the distribution of lesions gives any clue as to the nature of the disease. There was a large mass in the wall of the stomach which ulcerated into the stomach and had grown out into the tail of the pancreas. The presence of the smaller nodules in the liver and the spleen, without conspicuous involvement of the lymph nodes, would be suggestive of Hodgkin's disease. Therefore it is necessary to turn to microscopic study to make any diagnosis in this case.

In a section of a lymph node, the peripheral sinusoids have been destroyed and there is proliferation of fibrous tissue together with the presence of small lymphocytes and large mononuclear cells in moderate numbers. It is evident that some disease has destroyed the architecture of the node.

In another section of a lymph node more fibrosis is seen and cells with a moderate amount of cytoplasm, hyperchromatic nuclei and considerable variation in size and shape are observed. The amount of variation would turn attention to the possibility of a malignant tumor rather than to some other lesion connected with the hyperplasia of a definite type of cells.

A section of a nodule from the spleen displays, more than any other section, evidence for malignant tumor. The cells are markedly anaplastic, they do not resemble any normal cell and they are growing through the tissue with foci of necrosis and edema.

In a section from the wall of the stomach it is evident that the malignant tumor is invading and separating the fibers of the muscularis. This also gives strong support for the idea of malignant tumor.

In a section of the posterior abdominal wall, in which the mass in the pancreas came in contact with the skeletal muscle, it can be seen that the cells have the capacity to invade and separate the individual fibers of skeletal muscle. The muscle fibers are injured and showed multiplication of nuclei—the typical reaction of skeletal muscle to injury.

In the bone marrow there are obliteration of most of the normal elements and replacement by fibrous tissue. I would interpret this as the effect of radiant energy, with possibly some effect of inanition.

On the basis of the gross and microscopic studies, it is evident that some diagnosis must be made involving a malignant tumor derived from a lymphoblastic type of cell. Because of the intimate association of the cells with reticulum, I should make a diagnosis of reticulum cell sarcoma. Because foci of necrosis, multinucleation of cells and many of the features of Hodgkin's disease are observed, I submit a final diagnosis of Hodgkin's sarcoma.

SPECIAL ARTICLE

ENRICHMENT OF BREAD

WILLIAM H. OLMSTED, M.D.
ST. LOUIS

Prior to 1870, and probably for many thousands of years, bread had been made from wheat flour ground between millstones and consisting of a flour that contained most of the wheat berry, the outside branny layers, the germ and the starchy endosperm.

But in 1870 there was discovered a process whereby the branny coats and germ could be removed and the resulting flour made from the endosperm was pure white and could be ground to a very fine texture. This white flour became rapidly popular both in Europe and America. The reasons for this are easily apparent since the physical and chemical properties of flour make it possible to bake delicious pastry, cake, piecrust and rolls. The taste for breadstuffs is almost universal and there are very few persons indeed who do not like them. Fundamentally, the reason white flour has attained such popularity is because it lends itself to the highest type of culinary art. Everybody knows that one cannot make cakes or cookies out of whole wheat flour.

The importance of flour and bread in the nutrition of people in this country is apparent when one views the fact that 155 pounds of white flour are consumed per person per year and that flour and bread account for 25 per cent of the calories in the average diet; the other two staple groups of food from which a large proportion of calories are obtained are meats, which are a source of 25 per cent, and dairy products, which are a source of 20 per cent.

The first suspicion of a possible nutritional deficiency arising from the elimination of the outer coats and germ of the wheat berry was expressed from the consideration of the results of the work on the cause of beriberi. From 1897 to 1914 Eijkman, and later Funk,[1] had shown that a diet of polished rice produced beriberi in birds and that the extract from rice bran could cure this condition. In the first edition of McCullom's book,[2] he refers briefly to the fact that pigeons placed on a diet of bolted flour died sooner than pigeons which were subjected to starvation, and that those that were allowed to have the whole grain lived much longer. The full significance of the extent of the nutritional damage from the milling of flour awaited the discovery of accurate chemical procedures for the determination of thiamine, riboflavin and niacin in cereals. These methods were developed slowly but, in 1942, it was known that as a result of patent milling, 75 per cent of thiamine and riboflavin and 80 per cent of niacin as well as the greater part of the iron were removed from the whole grain.[3]

From 1870 to 1920 white flour and bread made

from it were only insignificant sources of the requirements for the B vitamin group and for iron. The first improvement in the quality of white bread of nutritional significance took place sometime between 1900 and 1920. The bakers had discovered that by adding "milk solids," composed of dehydrated skim milk to dough, they could make a bread which was more tasty and which had characteristics improving its sales ability. The bread made from dough to which had been added skim milk powder resulted in a bread with a better crust, an improved texture and a longer lasting freshness. For these reasons, in 1923 The American Institute of Baking took the initiative in strongly advocating the use of milk solids in breadmaking.[4] At that date it is said that the yearly consumption of milk solids by the baking industry was in the neighborhood of 33 million pounds, whereas at present 250 million pounds are used annually in breadmaking. Although it was not appreciated at the time, the addition of milk solids to bread results in a great improvement in its nutritional value. An optimum amount of six pounds is usually added to 100 pounds of flour; at this level the quality of protein of bread is improved, riboflavin is added in considerable amounts and the calcium content is raised so that six slices will furnish 30 per cent of the daily requirement (.6 gm.). Thus, "milk bread" resulted in a product which was enriched in proteins, riboflavin and calcium.

WHY WAS BREAD FURTHER ENRICHED?

Between 1935 and 1940 the U. S. Department of Agriculture, directed ably by Stiebling, conducted surveys of the diets consumed by the people of this country. Although it had been believed generally that the diets of the people were the best in the world, Stiebling[5] showed that judged against the standards which nutritionists gradually had adopted and which were, as a matter of fact, very conservative, many of the groups of people in this country were on grossly inadequate diets. This was particularly true of those whose family incomes were below $3,000 per year. Those whose incomes were $1,000 or less consumed diets which could not be considered anything but poor. Those who had better incomes had better diets in proportion as the incomes increased, until people whose incomes were $5,000 a year or more had diets which were, at least in half the instances, good. Another fact that was brought out by this survey was that the diet of the urban population was inferior to that of the rural population. Because of the access that the farmer's family has to milk, eggs and vegetables, their diets are better as a rule than those of the people in the cities. In 1943 the National Research Council published a bulletin which summarized the facts on the diets of the people of this country.[6]

As a result of these facts, nutritionists turned their attention to the means whereby the nutritional state of the country might be improved. It was apparent that a thorough education of the people on the importance of nutrition and the importance of certain protective foods in their diets was greatly needed. But, at the same time, the fact was appreciated that 25 per cent of calories came from white flour and 15 per cent from sugar, so 40 per cent of calories came from two refined foods which added very little in the form of vitamins or iron to the diet. This was a source of great danger, particularly to the people whose incomes were in the lower brackets and whose diet must consist of calory-giving cheap staple foods. Obviously, one of the ways to correct this state of affairs was to add to flour the vitamins which had been removed in the process of milling. Great progress had been made meanwhile in the synthetic preparation of such vitamins as thiamine. Since that vitamin was the one particularly deficient in the American diet, Cowgill[7] was led to urge the addition of this synthetic vitamin to flour.

At about the same time the Council on Foods and Nutrition of the American Medical Association had had applications for the fortification of foods with synthetic vitamins. This Council had considered the matter as early as 1936[8] and had emphasized that fortification of food should be on the basis of the need by the population in general and that in the case of the general purpose foods, such as flour, the addition of vitamins should be those which naturally occurred in the food prior to refining. The Council, therefore, looked favorably on the restoration of those vitamins which have been removed from wheat, and also the iron which is richly present in the bran.

In 1940 the National Research Council appointed a Committee on Food and Nutrition and the considerations of this committee were largely on the desirability of adding vitamins to flour and bread.[9] At about the same time the millers and bakers applied to the Food and Drug Administration for a standard which would allow them to add to the flour some of the synthetic vitamins then available. As a result of this action and the attitude of the Food and Nutrition Board of the National Research Council the government called hearings on this question. These hearings were so extensive that the printed records of them covered seven thousand pages. There was agreement between the three agencies that flour and bread should be enriched, and standards were set by the Food and Drug Administration. These standards meant that if a miller or baker used the term "enriched" on his label, the vitamin content of the bread or flour must reach an amount between the limits prescribed by the Administration. In 1941, therefore, the voluntary enrichment of flour and bread began. This program was met with success and very rapidly as much as 35 per cent of the flour and bread consumed was of the enriched variety. In 1943 the War Food Administration made the enrichment of bread mandatory in interstate commerce, but it did not make the enrichment of flour so.

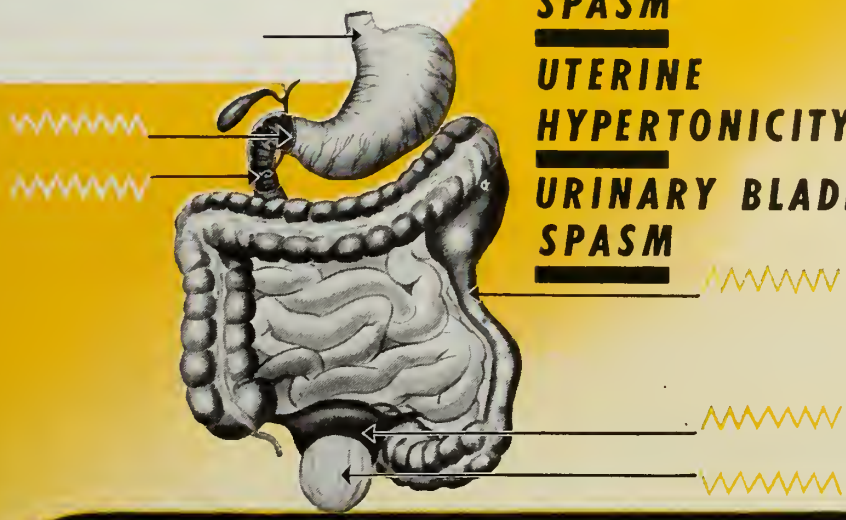
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three years, but the program of enrichment has been underway fully for only two years. The question arises as to what effect the enrichment of bread has had upon the nutrition of the people. Of course it is too soon to collect the data which will answer in any way that question. Nutritionists, however, know that as a result of this program the intake of thiamine, riboflavin and niacin has been very close to those standards set by the Food and Nutrition Board of the National Research Council. From the experiments on animals there is abundant evidence that an improvement in the intake of these vitamins proportional to the increase brought about through enrichment of bread will greatly improve the rate of growth and general health of the animals.[10] It is almost certain that if the enrichment of bread program can be carried out after the war and made a permanent policy, the improved nutrition of the people will result in a demonstrable improvement of health in general.

NEED OF STATE LAWS

One must remember that at present the enrichment of bread is mandatory only for interstate commerce and that the enrichment of flour is solely on a voluntary basis sponsored by the millers because they feel that it improves the quality of their product and that, therefore, the people will approve of it. At present 90 per cent of the flour milled goes through interstate commerce; however, in the case of bread, only 10 per cent passes a state line. The present laws do not affect in any way flour and bread produced and sold within a state. Flour used by a family, or by institutions such as restaurants, hotels and eleemosynary institutions need not be enriched and, at present, the cheapest grades of flour used by the poor are not enriched. The total amount of flour that goes into the manufacture of baker's bread is about equal or a little more than that which goes into the family loaf baked at home plus that baked in institutions. Thus only half of the flour used in this country need necessarily be enriched. For this reason it has been thought wise by those interested in this program that all of the states pass laws making it mandatory that both flour and bread consumed within the borders of the state be enriched. The war powers of the War Food Administration, of course, will cease after the war is over and all its mandatory features will be cancelled.

In Missouri Senate Bill No. 130 has been introduced by Senator Smith making the enrichment of flour and bread mandatory in this state. The bill is now in the Senate Committee on Agriculture. All those interested in the enrichment of bread should unite in backing this measure for passage. Sixteen states, most of them in the southern section of the country, have passed laws similar to the one introduced before the Missouri Legislature.

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ABSTRACTS AND DIGESTS

OXYURIASIS

A clinical survey of 200 consecutive cases of infection with enterobius vermicularis in children was made by Major Milles and Lt. Col. Einhorn in Gorgas Hospital, Ancon (Am. J. Dis. Child. 68:376). The symptomatology carefully studied revealed no diagnostic symptoms or signs, which corroborates the common belief that the only positive sign of pinworms is to find some worms in the anal region. Curiously, the Negro seems to be less susceptible than the white children to this infestation.

"The development of the cellophane tip, introduced by workers in the National Institute of Health, has provided for the first time a practical laboratory method for diagnosing oxyuriasis." The method certainly has its limitations and practitioners will find it more practical to give a laxative dose of castor oil and let the mother examine the stool.

"In general, three types of treatment were tried here. (1) Administration of gentian violet in enteric-coated capsules. This was given in doses of 0.25 grain to 1 grain three times a day twenty minutes before each meal for two periods of eight days each, interrupted by a rest period of seven days. This treatment was used only for children old enough to swallow the capsules intact. (2) Administration of quassia enemas, rectal injections of 2 or 3 ounces of a strong infusion of quassia chips were given, followed in twenty minutes by a soapsuds enema. This routine was repeated on alternate days for two months. (3) Administration of tetrachloroethylene. This medicine was given in a single dose preceded the night before by a purgative dose of magnesium citrate. Treatment was administered at 8 a. m. with another dose of magnesium citrate and food withheld until supper."

The results of these treatments were somewhat uncertain as there was an inadequate follow-up care. Many of the children who received tetrachloroethylene showed toxic symptoms and the final

result was disappointing. Gentian violet seemed efficacious in most cases but the capsules provoked vomiting in many children. The treatment with quassia gave symptomatic relief, but two out of ten children showed continued infections.

"There is to date no perfectly satisfactory method for the diagnosis of pinworm infection."

John Zahorsky, M.D.

INFECTIOUS LYMPHOCYTOSIS

A pronounced lymphocytosis occurs in pertussis, lymphatic leukemia and to a less extent in infectious mononucleosis, tuberculosis and several eruptive diseases. In recent months pediatricians have become interested in an infectious mononucleosis without clinical signs or symptoms. The cases were discovered from the routine blood cell counts in hospitalized children. An epidemic (twenty-one cases) of such cases was reported by Finncane and Philips (Am. J. Dis. Child. 68:301). In the majority of cases the total leukocyte counts were more than 40,000, while in three children they were more than 100,000: in all except four instances the percentage of lymphocytes was 85 or more. In none of these cases were any symptoms present at the onset; the condition in every instance was discovered by routine blood counts.

The average probable duration of the leukocytosis was approximately four and seven tenths weeks; the longest was seven weeks. An eosinophilia appeared when the total count began to drop and persisted for some time. The Paul-Bunnell test for infectious mononucleosis was negative. Bacteriologic tests were invariably without result.

The patients were inmates of the Glendale Sanatorium for tuberculous children. The lymphocytosis did not perceptibly affect the tuberculous process (most cases were mild). Although no symptoms were present at the onset, nearly all the children developed an acute nasopharyngitis at the end of the period. This was regarded as coincidental. No splenic or lymphatic enlargements were found.

From this and other observations one might obtain the impression that pronounced leukocytic changes may occur in children from obscure causes, but such changes have no clinical importance. However, one gets quite a different picture from another series of observations (Beloff and Gang, J. Pediat. 26:586). The reported four cases were of extreme interest from a diagnostic standpoint. These cases of illness occurred at a summer camp. The first sick child presented the syndrome of a bulbar type of poliomyelitis. The second patient became ill one week later with the clinical picture resembling infectious lymphocytosis, a disease entity first described by Smith (Am. J. Dis. Child. 62:231). A third child showing the blood picture of a lymphocytosis developed some paralytic signs. All these cases revealed a high content of lymphoid cells in the spinal fluid. The fourth child had no lymphocytosis but paralytic symptoms. Now, the question is pertinent, may acute infectious lymphocytosis and poliomyelitis occur simultaneously in the same epidemic?

Although these studies may have an important clinical bearing and a new syndrome may ultimately be clearly described, acute infectious lymphocytosis must be accepted with caution as a new disease.

John Zahorsky, M.D.

PENICILLIN THERAPY

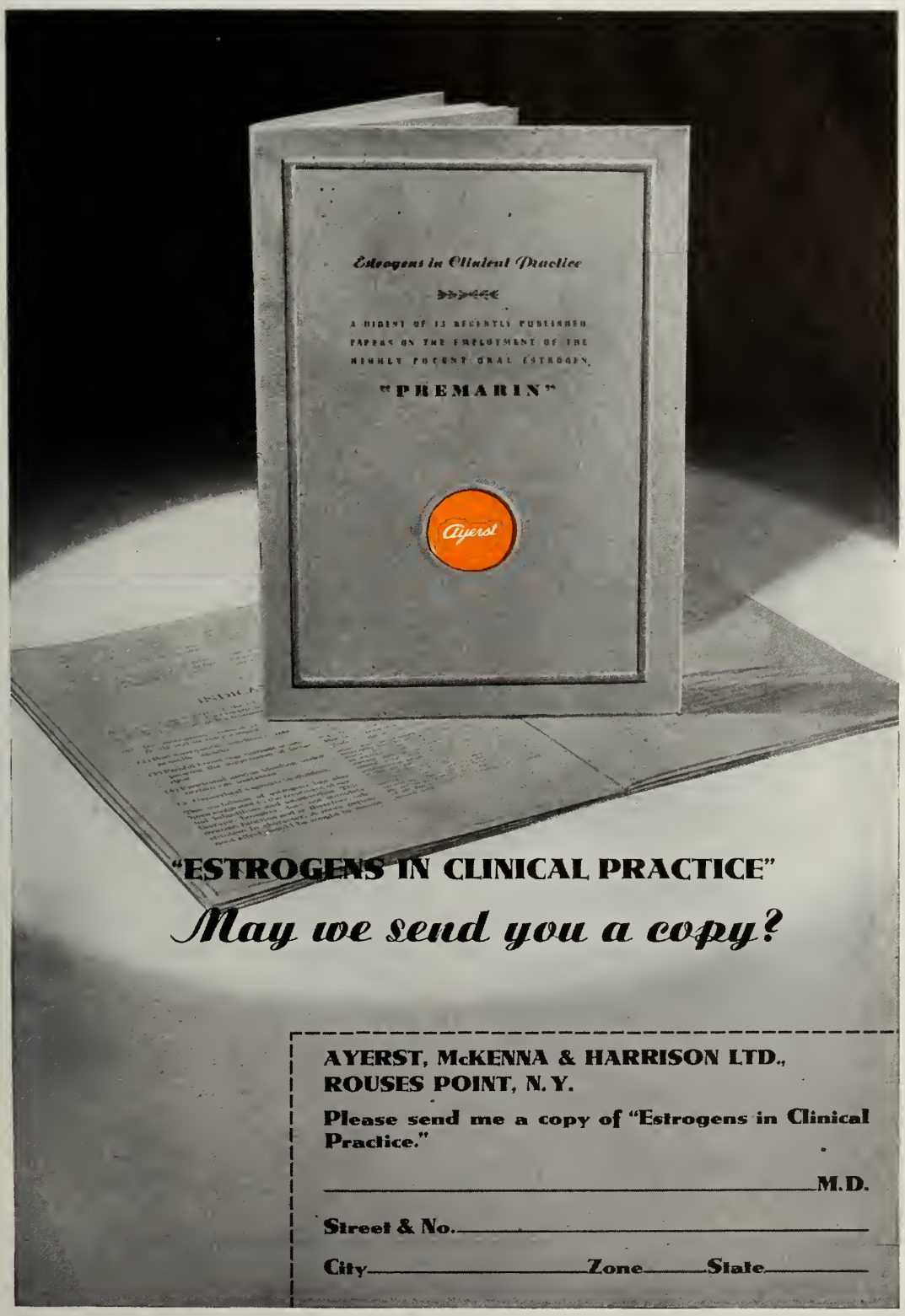
Clinical Action of Penicillin on the Uterus. Herbert M. Leavitt. J. Ven. Dis. Inform. 26:150-153 (July) 1945.

The possibility that penicillin may have effects on the uterus similar to, but less intense than, those of ergot, also a mold product, is suggested by a review of records of pregnant women treated with penicillin at the New Mexico Intensive Treatment Center.

Of twenty-one pregnant women treated for syphilis or gonorrhea with penicillin, eight manifested symptoms of uterine activity—cramps or bleeding or both. Of the eight patients showing uterine symptoms, two had complete abortions immediately following the use of penicillin.

Of the eight cases in which symptoms occurred, seven were treated with the same lot of penicillin; four other pregnant patients treated with penicillin of the same lot manifested no unusual symptoms. Of ten pregnant patients treated with penicillin made by three other manufacturers, only one showed symptoms. This may suggest that the observed action on the uterus may have been due to an impurity and not to the penicillin itself. Another group of physicians previously had reported two cases of threatened abortion following penicillin therapy for syphilis in pregnant women; they interpreted the reaction as a form of therapeutic shock rather than as the result of specific action of penicillin.

Several medical officers in charge of various rapid treatment centers have commented informally on the effect of penicillin in inducing premature menstruation or in prolonging menstruation already started. Effects of penicillin on menstruation have been observed repeatedly at the New Mexico center. Some patients with a history of delayed menstruation promptly began to bleed soon after administration of penicillin. Others bled more profusely or for longer periods of time than normal, and some bled within a week after having completed previous menstruation. A rapid survey of the records of all mature female patients of menstrual age treated with penicillin at the New Mexico center showed that seventeen of 206 patients menstruated during the twenty-four hour period immediately following beginning of penicillin therapy; this was more than twice the 7.4 who might be expected to menstruate during any given twenty-four hour period. In a control survey of 253 ma-



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ture female patients of menstrual age treated by methods not including penicillin, only seven women menstruated during the first twenty-four hour period following the beginning of treatment.

SULFONAMIDE RESISTANT GONORRHEA

Outpatient Penicillin Therapy of Sulfonamide Resistant Gonorrhea. William F. Fidler. J. Ven. Dis. Inform. 26:153-156 (July) 1945.

A shortened schedule for penicillin therapy of sulfonamide resistant gonorrhea in outpatients is reported as effective in a study of fifty-four patients at the Venereal Disease Clinic, Christian County Health Department, Hopkinsville, Kentucky.

Before presenting his study, Fidler reviews the work of other investigators in sulfonamide resistant gonorrhea, discussing rapid treatment, as contrasted to longer treatment periods.

With no hospitalization available, fifty-four sulfonamide resistant patients were treated for gonorrhea in a clinic on a four hour schedule, consisting of a total 100,000 units of penicillin given in three doses of 33,333 units each at two hour intervals. Complications seen in thirteen of the fifty-four patients cleared up rapidly. Sixteen of the patients were male and thirty-eight female; twenty-seven were white and twenty-seven Negro. Ages ranged from 9 to 54 years. Of the forty-two cases followed, 95 per cent had three consecutive negative cultures over a minimum of twenty-one days after the first treatment. Retreatment of two initial treatment failures brought the cure rate to 100 per cent. Neither previous treatment nor duration of infection seemed to affect the results. No evidence of toxicity was seen in any of the patients.

BOOK REVIEWS

Manual of Clinical Mycology. Prepared Under the Auspices of the Division of Medical Sciences of the National Research Council. Norman F. Conant, Ph.D., Asst. Professor of Bacteriology, Duke University School of Medicine and Mycologist to Duke Hospital; Donald Stover Martin, M.D., Associate Professor of Bacteriology and Associate in Medicine, Duke University School of Medicine; David Tillerson Smith, M.D., Professor of Bacteriology and Associate Professor of Medicine, Duke University School of Medicine; Roger Denio Baker, M.D.; Associate Professor of Pathology, in charge of Surgical Pathology, Duke University School of Medicine; Jasper Lamar Callaway, M.D., Asst. Professor of Medicine, in charge of Dermatology and Syphilology, Duke University, School of Medicine. Philadelphia: W. B. Saunders Company. 1944. Price $3.50.

The National Research Council through the Division of Medical Sciences aims to furnish the medical departments of the United States Army and Navy with presentations of information in the field of military medicine. In this book on clinical mycology there is presented material which also will be of value to all practitioners of medicine. There is discussed a wide variety of diseases caused by fungi, some of which are commonly observed in the United States and some of which one may expect to see more frequently in the soldiers returning to civilian life after experiences in foreign lands.

The value of this little volume, however, is largely in the clarity and simplicity with which it is written, and in addition the illustrations are distinctive, sharp and serve to make clear the lesson which is to be learned.

In each chapter there are sections on symptomatology, differential diagnoses, prognosis and treatment, on the mycology of the disease, on geographic distribution and immunology and on pathology. These sections are clear and concise and all essential material is presented.

It would appear that special effort had been made to write the sections on mycology in simple language and to reduce the complexities and difficulties of differentiation of the various causative agents as far as possible. That is not an easy task.

In large part the material presented is derived from the personal experiences of the five coauthors. There may, therefore, be disagreement on the part of some individuals with some of the facts as stated; that is usually inevitable. However, as an aid and guide to the less experienced in the field of clinical mycology the book has great value. M. S. F.

Pathology of Internal Diseases. By William Boyd, M.D., LL.D., M.R.C.P., Ed., F.R.C.P., Lond., Dipl. Psych., F.R.S.C., Professor of Pathology and Bacteriology in the University of Toronto, Toronto; Formerly Professor of Pathology in the University of Manitoba, Winnipeg, Canada. Fourth Edition, Thoroughly Revised. Illustrated with 366 Engravings and 8 Colored Plates. Philadelphia: Lea & Febiger. 1944. Price $10.00.

In the fourth edition of this volume, as in former editions, an effort has been made to correlate pathology and pathologic physiology with clinical manifestations of disease. Considerable new material had been added and several sections have been rewritten in while or in part. The new discussions include primary atypical pneumonia, the Rh factor in erythroblastosis fetalis, blast injury, Meig's syndrome, the renal lesion in subacute baterial endocarditis, nonglomerular uremia and many others. There are numerous well chosen illustrations. Bibliographies follow each chapter. The author has succeeded in showing the intimate relation which pathology bears to medicine. R. V. P.

Diagnosis and Treatment of Acute Medical Disorders, The. By Francis D. Murphy, M.D., F.A.C.P., Professor and Head of the Department of Medicine, Marquette University School of Medicine and Clinical Director of the Milwaukee County General Hospital and Emergency Unit, Milwaukee, Wisconsin. Philadelphia: F. A. Davis Company. 1944. Price $6.00.

This book is designed to present the recognition and treatment of acute medical episodes. This it does well and effectively, particularly in a section devoted to tropical diseases, of which this country is likely to see an increasing number, and it behooves physicians to be familiar with the acute manifestations and the prompt treatment of them. In this effort the book accomplishes its purpose exceedingly well. It is a subject which, because of the acute processes involved, is hard to teach in medical schools and receives much less attention than it deserves. The physiologic background and reasons for acute conditions are well presented and a sane balance is maintained between medical measures as such and surgical procedures which may be the ultimate requirement. The medical steps as preparatory and as safeguards for surgical procedures are well presented.

This is a gathering together of information on acute disease processes, which has not previously been done, and should be a subject with which all physicians are familiar and have at the tips of their fingers. W. B.

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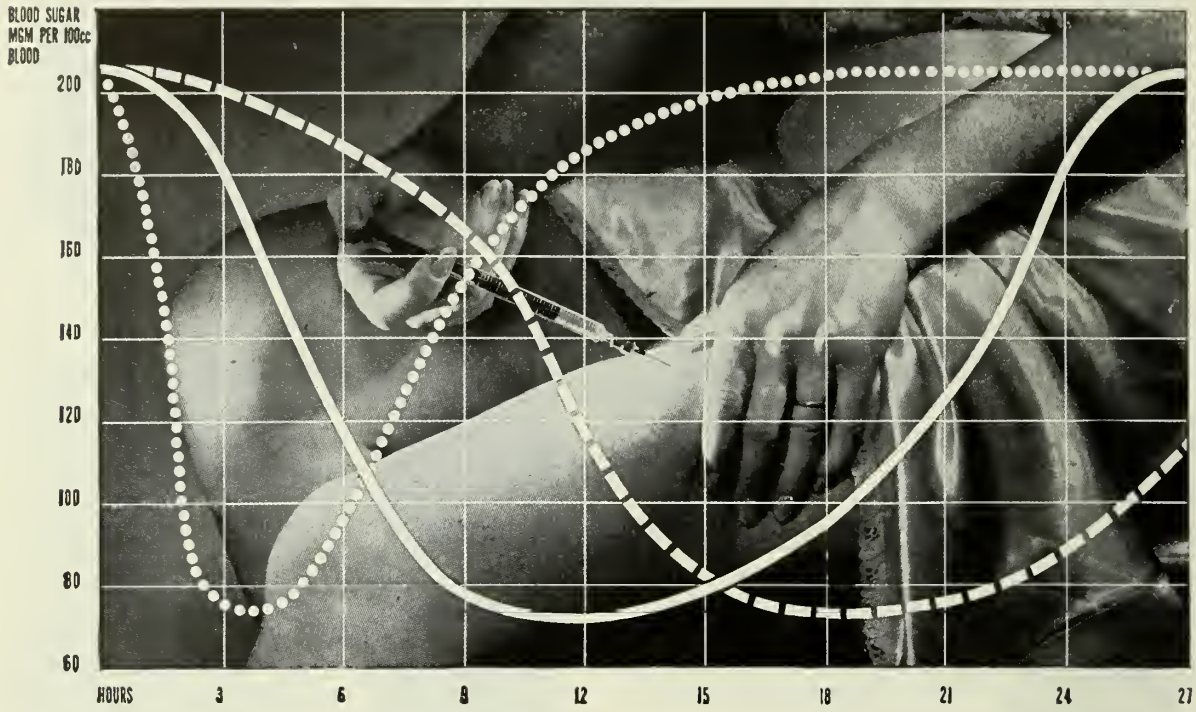
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SEPTEMBER, 1945

EDITORIALS

FOUR YEAR MEDICAL SCHOOL

House Bill No. 138, which provides that the University of Missouri shall provide a four year school of medicine with the last two years in Kansas City, will be considered by the Senate Committee on Education after the Legislature reconvenes September 4.

This proposal, which secured the unanimous endorsement of the House of Delegates of the Missouri State Medical Association, has received active opposition from the Board of Curators of the University of Missouri. In a pamphlet published by the Board in November 1944, the conclusion reached was that "there is no justification for a four year medical course at the University of Missouri." Apparently since that time the Board has changed its opinion. In a news release dated July 28, 1945, the Board reversed its previous stand and ordered the establishment of a four year course at Columbia, Missouri. The news release gives the following reasons listed by the Board for its contention that a state-wide health program can be of "maximum value" only if the whole four year course is centered at Columbia:

"1. The intimate contacts with rural Missouri that have been built up for the university by the college of agriculture ensure that a medical school at Columbia would be more conscious of rural problems than would a school in a 'distant city.'

"2. The training of doctors in a university community the size of Columbia would influence those doctors to settle in rural areas.

"3. The central location of Columbia and its 'excellent highway connections with rural Missouri' make it a more logical choice than a city at the state's border.

"4. State investments for medical facilities in Columbia now total $2,138,569 and should be fully used.

"5. Within a radius of 30 miles of Columbia there exist the 2,852 bed state hospital at Fulton and the 203 bed state hospital at Jefferson City, local hospitals in Columbia, Jefferson City, Fulton and Boonville, all of which can be used for clinical study and externship.

"6. Location of the medical school at the university would permit close cooperation with the departments of physics, chemistry, biology, psychology, anthropology and sociology.

"7. Maintenance of the school at the university would permit development of 'educational interrelationships with other professional schools,' particularly agriculture, engineering and law, and would ensure coordination of the preclinical and clinical courses.

"8. Only location at Columbia could ensure that the university would control management of the principal teaching hospitals.

"9. University social attractions appeal to men entering the teaching field in medicine, and a strong medical school on the campus would attract men more than one detached from the educational environment.

"10. Professors' salaries in a university community would be more likely to satisfy distinguished teachers than the same salary in a large city."

The Board of Curators also is quoted as recommending the following special features:

"1. Establishment of a health extension service, similar to the agricultural extension service, for the entire state.

"2. Provision for three months of study in rural communities under the supervision of local physicians during the fourth year of the course.

"3. Maintenance of short 'refresher' courses in medicine in various sections of the state.

"4. Use of adequate mobile laboratories to provide clinics for all parts of the state.

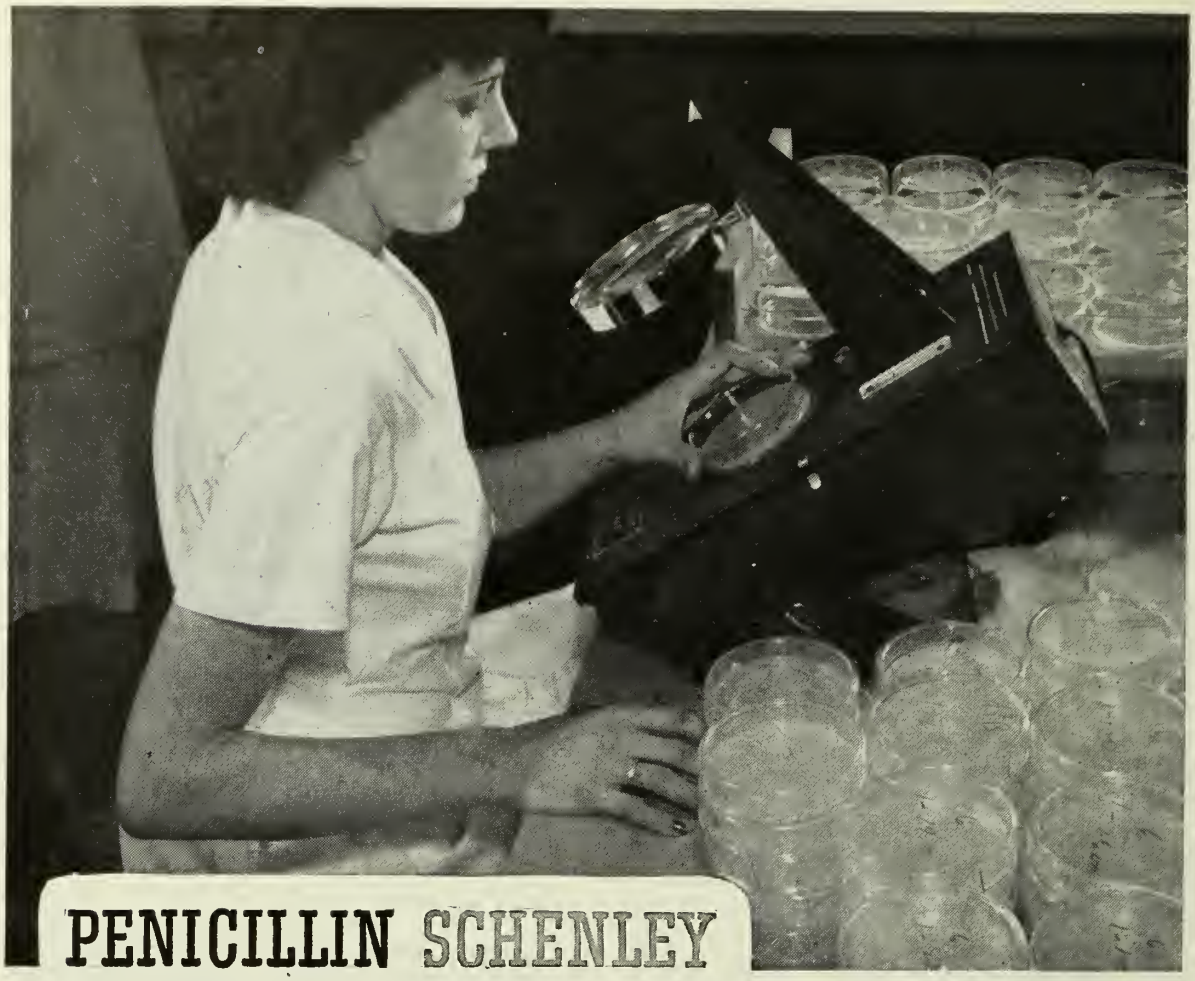
"5. Use by the university of state owned hospital facilities in and near Columbia, with arrangements for further clinical study at other hospitals in the state.

"6. Construction of a 'moderate sized' state teaching hospital and a 50 bed hospital for crippled children on ground already owned by the university at Columbia.

"7. Integration of the university's medical school program with the various state and federal agencies now working with health and medical programs."

BLUE CROSS PLANS

Today there are more than 2,000,000 Americans paying their physicians' and surgeons' bills through medical and surgical care plans. One out of every seven Americans is paying his hospital bill through Blue Cross plans, or 17,500,000 persons. There are now approximately twenty-one medical and surgical care plans in operation and only six states, containing but 5 per cent of the population of the United States, are without Blue Cross plans. These are services which were sponsored and started by the medical profession throughout the country as were the plans operating in Missouri; namely, Surgical Care of Kansas City, Missouri Medical Service, Blue Cross of St. Louis and the Blue Cross of Kansas City.



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The two Blue Cross plans operating in Missouri recently have issued annual reports, the one in St. Louis its ninth annual report, and the plan in Kansas City its seventh.

The plan in St. Louis, at the end of its fiscal year, showed 530,342 members, a net increase during the year of 140,668. This is 74.3 per cent gain above the net additions of the previous year. The report shows some interesting figures, as the comparison of the present membership of more than half a million to the 8,114 members at the end of its first year; that in the nine years there have been 25,319 births under the plan, or 88 tons of babies born to Blue Cross members; that a total of $10,762,711.79 has been paid to hospitals during the nine years.

During the last year seventeen additional countries in northwest Missouri were added to the Kansas City Blue Cross plan making a total of nineteen counties in that area. The report of the Kansas City plan shows that the plan is serving approximately 130,000 persons; that 49,323 members have received a total of 419,390 days of hospital care in the seven years; that there have been 7,425 Blue Cross babies during that time, and that a total of $2,222,783.45 has been paid to hospitals.

The medical profession is proud of the part it has played in the formation and development of these fine civic services and offers sincere congratulations and best wishes to the trustees and directors of the plans. As the medical service plans develop and go forward, as have the Blue Cross plans, more and more persons will avail themselves of these contracts. No one can prophesy the future success; however, certainly it is not too much to hope that all Missourians eventually will be covered.

NEWS NOTES

St. Louis University School of Medicine has announced the appointment of Dr. Joseph A. Hardy as head of the department of gynecology and obstetrics, Dr. B. J. McMahon as head of the department of otolaryngology and Dr. G. V. Stryker as head of the department of dermatology.

Dr. Harry L. Alexander, St. Louis, will be on the faculty of an orientation course in clinical allergy to be presented by the School of Medicine, University of Pittsburgh, from October 1 to Octoger 5.

RANDOM OBSERVATIONS

By a Roving Reporter

Some remarkable accomplishments noted in a recent number of the *Bulletin of the United States Army Medical Department:* (1) After three and a half years of war there has not been even one example of plague in military personnel; (2) the days lost per 1,000 men per year because of venereal disease in the continental United States has decreased from 1,278 in 1940 to 285 in the early part of 1945.

The atomic bomb should not only demolish Japanese cities but also finally put into oblivion those who have argued against cooperative research. What bids fair to revolutionize our concepts of power was the product of many minds and many hands all directed by a single group of top-flight scientists. Individualism in research is still good, but there is a proven place for community research. This bomb is also an excellent example of the cost of research—two billion dollars. But, if the war is shortened by two weeks, the expenditure will be repaid in actual money saved, without any consideration of the saving of American lives.

MISCELLANY

AMERICAN RED CROSS ANNOUNCES NEW POLICY GOVERNING PARTICIPATION OF CHAPTERS IN CIVILIAN BLOOD DONOR SERVICES

Development of the Policy

As early as 1937 the American Red Cross authorized a few selected chapters to carry on an experiment in the enrollment of volunteer blood donors to be available on call from hospitals and physicians for blood donations free of charge to those not able to pay for them. Under the stimulus of the war, the blood plasma program of the Office of Civilian Defense and the Red Cross Blood Donor Service for the armed forces, a demand arose from many communities for local blood or plasma banks for civilians.

By 1943 state departments of health had become interested in the establishment of state-wide blood donor services. In Michigan Red Cross chapters were authorized to cooperate with the state department of health under the conditions prescribed for local blood and plasma banks.

By 1944 the successful use of plasma and other blood derivatives for the armed forces and the association of the American Red Cross with the procurement of blood for this purpose had resulted in a widespread demand that the Red Cross, out of the abundance of its experience, render a similar service to the civilian population.

By 1945 several states, cities and counties were engaged in or planning programs to supply blood and blood derivatives for civilian use, and chapter participation in a dozen or more of these programs had already started or was under discussion. The special Medical and Health Survey Committee of the American National Red Cross reviewed the whole matter with the result that previous instructions governing the participation of chapters in local blood or plasma banks have been superseded by the following policies, principles and procedures.

The Policy

Chapters of the American Red Cross desiring to do so may participate in civilian blood donor services only upon the receipt of authorization from the area manager. Such authorization may be granted only when the following conditions are met:

(a) That the responsibility for technical operations, staff and equipment rests with a reliable medical or health agency.

(b) That participation of the chapter is limited to the recruitment or enrollment, or both, of volunteer donors and the provision of nontechnical staff and equipment.

(c) That the community is not serving as a source of blood for the Army and the Navy, or, if it is, that the amount of blood required for civilian needs is obtainable over and above the needs of the armed forces.

(d) That participation of the chapter is limited to one program of volunteer blood donor service for civilians in any one community. If two or more medical or health agencies wish to sponsor programs in the same locality with Red Cross participation, a joint arrangement shall be developed.



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*J.A.M.A. 127:74-76 (Jan. 13) 1945.

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(e) That the sponsoring medical or health agency meets the minimum technical standards specified by the American National Red Cross. These will be prescribed, in conformity with all applicable government requirements, by a national advisory committee of specialists in the field of blood transfusion and blood substitutes to be appointed by the chairman of the American National Red Cross.

(f) That the services as set up in each individual case are officially approved by the health department having jurisdiction, the appropriate medical society and the hospital agency.

(g) That the service is designed to serve all acceptable hospitals and clinics and all physicians licensed to practice medicine and surgery in the communities where the service is conducted.

(h) That no charge is to be made physicians, hospitals, clinics or patients for the blood or blood derivatives produced under the program. In other words, the costs of donor recruitment, donor center operation, the collection and transportation of blood, the processing of plasma and other by-products, and the distribution of whole blood and its derivations must be met by other means than a charge to physicians, hospitals, clinics or patients for any of the products furnished.

(i) That the care and protection of donors is to be wholly the responsibility of the sponsoring medical or health agency.

(j) That the sponsoring medical or health agency agrees that the cooperating chapter or chapters will be the sole donor recruitment and enrollment agency for the program. This will avoid the confusion of the public and the consequent loss of effectiveness of appeal that would ensue if responsibility should be shared with other agencies in the community. However, it should be understood that cooperative relationships may be established with local agencies which are interested in assisting the chapter by recruiting donors from their personnel or their constituencies.

(k) That blood donors are to be recruited on a voluntary basis and blood is not to be accepted from any person paid to donate.

(l) That the Red Cross is to be responsible for seeing that there is adequate publicity for donor recruitment, to acquaint the public with the purpose for which its blood is to be used.

(m) That the chapter is in a position to finance its part of the project without financial assistance from the national organization.

(n) That the American National Red Cross is permitted to draw upon reserves of blood or blood derivatives as occasion may require for use in disasters or other emergencies.

Administration of the Program

1. In Chapters: An application for authorization to participate in a civilian blood donor service must be submitted by the chapter chairman to the area manager for approval before the chapter may take part in such a project. When authorization from the area manager has been received the chapter will appoint a Civilian Blood Donor Service Committee to conduct and supervise the chapter program. This committee should include representatives from appropriate chapter services, the medical society, the health department and the hospitals. The chapter committee on Civilian Blood Donor Service will look to the area medical director for advice and guidance in the conduct of the program.

2. In the Area Offices: The conduct of the program in the areas is a function of the area medical director. He will maintain liaison with public and private medical and health agencies operating programs to supply blood and blood derivatives, and will supervise the civilian blood donor service operations conducted by the chapters.

3. At National Headquarters: Under the general supervision of the national medical director, the Director

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of Civilian Blood Donor Services will maintain liaison with the national advisory committee of specialists in the field of blood transfusion and blood substitutes. He will prepare the technical standards for the guidance of the sponsoring medical and health agencies in the procurement and processing of human blood, and the necessary basic instructions covering the policies and procedures for the guidance of chapters in the procurement and enrollment of donors. He will give general supervision to the operation of the program and will be available as a technical consultant through the area offices.

Chapter Participation

Authorization will be granted to Red Cross chapters to participate in civilian blood donor services only in case the chapter and the sponsoring agency meet the terms and conditions stipulated by the American National Red Cross. This requirement is in the interest of giving to the civilian population the benefit of the intensive experience gained by the American National Red Cross and the agencies associated with it in the operation of its Blood Donor Service for the armed forces. It will also encourage the establishment, on a nation-wide basis, of proper standards of donor procurement and enrollment and of blood procurement and processing. The continuance of the American Red Cross in the field of blood donor service, for which its name and emblem have virtually become the symbol during the war, should inspire public confidence and stimulate a more ready response on the part of volunteer blood donors. This should facilitate the widest possible distribution of the products of blood donor services to those who need them.

Medical and health agencies which now have or are planning a program to furnish blood and blood derivatives for civilian use and are interested in obtaining the assistance of Red Cross chapters should contact their chapter if the territory the program is to serve is within an individual chapter's jurisdiction, or the appropriate area office of the American National Red Cross if the program is to serve a territory involving the jurisdiction of more than one chapter.

SOCIETY PROCEEDINGS

EIGHTH COUNCILOR DISTRICT

WALLIS SMITH, SPRINGFIELD, COUNCILOR

Barry-Lawrence-Stone County Medical Society

The Barry-Lawrence-Stone County Medical Society entertained the Greene County Medical Society with a trout dinner at Roaring River State Park, Cassville, on June 28. Approximately seventy-six members and their wives were present. Music was furnished during the dinner hour by musicians from Springfield.

After an enjoyable dinner, an informative talk was given by Dr. Wallis Smith, Springfield, Councilor of the Eighth Councilor District, concerning the establishment of the medical school at the University of Missouri, with the last two clinical years at Kansas City, for which unanimous approval was expressed.

Dr. Smith introduced the new state health Commissioner, Dr. R. M. James, who ably convinced those present that he would fill his job in a splendid manner.

A telegram from Senator Raymond Williams, who was expected at the meeting, was read to the members by Dr. George W. Newman. In the telegram, Senator Williams expressed his regrets at not being able to attend.

The success of this meeting was convincing to those present that a great deal of good may be accomplished by closer association between the various units of the State Medical Association.

George W. Newman, M.D., Secretary.



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A Private Hospital for Care of Nervous and Mental Disorders, Alcohol and Narcotic Addictions.

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The depth to which protein permeates the fabric of metabolic life, and the role it plays as "raw-material" and component of elaborated secretions is indicated in hormonal composition.

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WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

Fall Board Meeting
Thursday, September 20
Missouri Hotel
Jefferson City

School of Instruction 11:00 a. m.
Luncheon 12:30 p. m., $1.25
Tea, Governor's Mansion 4:00 p. m.

Public Relations

"The purpose of the Committee on Public Relations is to contribute toward shaping the community trends with respect to health for the good of the public and the advancement of medical science." (This is a quotation from the handbook of the Woman's Auxiliary to the American Medical Association.) With this in mind the chairman of the Committee on Public Relations of the Woman's Auxiliary to the Missouri State Medical Association is making the following suggestions:

1. Since *Hygeia* is the magazine published by the American Medical Association for the education of the lay public on matters pertaining to health and to the attitudes of the medical profession, and since *Hygeia* has been endorsed by the Missouri State Medical Association, the Committee on Public Relations urges county auxiliaries to continue to increase the circulation of *Hygeia* and to put it in rural and city school libraries and other places.

2. The essay contest is a special public relations project. This committee urges the cooperation of auxiliaries in following out the plans of the essay contest chairman.

3. A special public relations meeting sponsored by county auxiliaries should be held, to which other organizations interested in health education are especially invited. The program for this meeting should be on some health topic adapted to each particular community and the speaker should be a physician. It is of particular value to have an outstanding speaker. A social hour may be included.

4. Promote cancer control. Stress tuberculosis program and programs on mental health. Adapt all programs to the local community.

5. Listen to radio programs sponsored by the American Medical Association. Time, station and subject are listed in the *Journal of the American Medical Association* and *Hygeia*. Announce the time of these programs to other groups.

6. At some time in the fall a program for additional activities may be prepared by the Missouri State Medical Association and, if so, it will be sent to all county chairmen.

MRS. J. I. BYRNE, Public Relations Chairman.

Essay

Encouraged by the generous state wide response in our Essay Contest of last year, the Auxiliary again is making plans to sponsor this project. It is hoped that we may get away with a running start this year and that the number of participants may be doubled in 1946.

We are delighted to announce that we will have substantial prizes again this year, many thanks to the Missouri State Medical Association.

This summer is a good time to contact your English and hygiene teachers of your own schools. I hope to meet all the Essay Chairmen at the fall Board meeting at Jefferson City when all the plans will be discussed in detail.

MRS. RUSSELL C. PORTER, Essay Chairman.

National Bulletin

Do You Know?

That the National Bulletin was established to give the members authentic information concerning all Auxiliary activities?

That the National Bulletin publishes addresses given by distinguished physicians before Auxiliary gatherings?

That articles prepared by officials and directors of Bureaus and Councils of the American Medical Association are printed in the National Bulletin?

That reports of the presidents of state Auxiliaries were printed in the May issue? Have you read Mrs. McCubbin's report?

Since the President, Mrs. Harry M. Gilkey, has designated the National Bulletin as one of our goals for the coming year, let us again strive for every county recognition: At least one subscription or more from every county. Last year we sent in forty-three subscriptions. Let's make Missouri 100 per cent subscriptions. I am looking forward to seeing you at the meeting in Jefferson City on September 20. I hope at that time to receive your orders.

MRS. M. PINSON NEAL, National Bulletin Chairman.

The President's Message

As I write this message the horns are blowing and everyone is celebrating the declaring of the Peace. We are all very thankful and praise God that we live to see that peace has come to all the world.

This year should show great strides of progress in our Auxiliary. Everyone will have more time to devote to this work. The first thing I thought about was the War Service Chairman. Now we should change it to the Rehabilitation Chairman. That is one of the things we can discuss at the Board meeting.

I do hope I may meet all officers, chairmen, county presidents and county chairmen at the Board meeting in Jefferson City September 20. The School of Instruction is a new feature and will be most helpful to all the county chairmen.

Mrs. Phil M. Donnelly, wife of Governor Donnelly, has graciously consented to receive the women at 4:00 p. m. at the Governor's Mansion.

It is with great regret that I announce the resignation of Mrs. George Ruddell as first Vice President. She has served the Auxiliary long and faithfully and we hate to lose her. Her successor will be announced at the Board meeting.

I wish to announce that Mrs. A. S. Bristow, Princeton, is the first member at large for this year.

MRS. HARRY M. GILKEY, President.

SUMMER DIARRHEA IN BABIES

Casec possesses outstanding merit in the treatment of diarrhea and loose stools in infants and in children. The promptness with which Casec checks diarrheal stools is an important factor in arresting the dehydration which makes infantile diarrhea so serious a clinical problem. At the same time Casec replenishes calcium lost in the stools. The high protein content of Casec, moreover, aids in promoting tissue growth in infants who have become wasted as a result of diarrhea. Because of its antifermentative action and its growth-promoting constituents, Casec is a particularly effective weapon against the so-called summer diarrheas.



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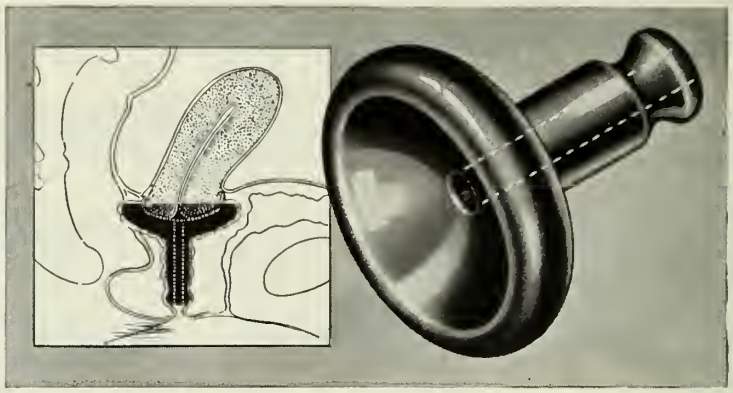
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But, let's be mindful of the fact that cosmetic needs vary with the individual. Dry skins need different types of cosmetic preparations than oily skins; the shade of rouge, powder, lipstick, etc., that creates a charming effect on one woman creates an effect that is anything but charming on another.

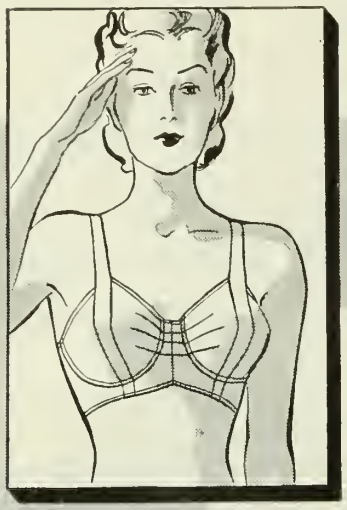
And so, we contend, if cosmetics are to contribute to the loveliness and charm of your appearance they must be suited to your requirements, both from a standpoint of whether, viewed cosmetically, your skin is normal, dry or oily, and with regard to your coloring.

Luzier's service is made available to you by Cosmetic Consultants who assist you with the selection of suitable types and shades of Luzier beauty aids and suggest how to apply them to utilize all of your potential loveliness.

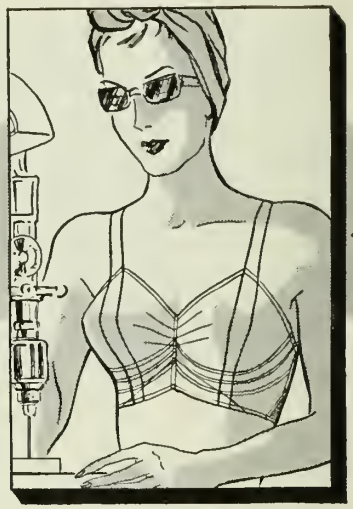
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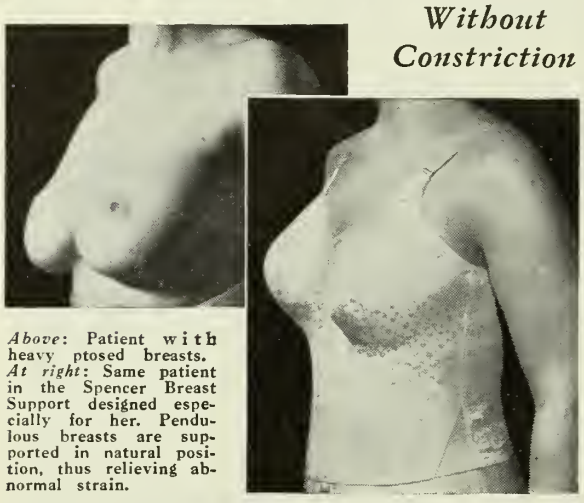
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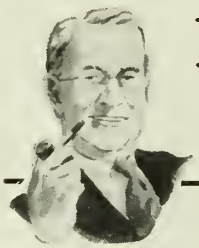
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The county had a "mad dog" scare last week. Phoebe Token's spaniel bit the postman, and he vowed that he was plenty mad about it.

But by the time the rumor got around, it wasn't the postman who was mad, it was the dog. And before the truth was learned, half the kids in the neighborhood had missed school, while their mothers nearly drove Dr. Walters crazy, asking him for advice.

Wagging tongues can cause a lot of "mad dog" trouble. Like the wagging tongues that gossip about soldiers drinking too much around Army camps. There's not a bit of truth in it—as the Government found out and told us.

Milk and beer are a soldier's favorite drinks—which is why we have the best behaved Army in history. But those ugly rumors are bound to hurt morale and cause hard feeling.

From where I sit, wagging tongues can cause a heap more trouble than mad dogs.

Joe Marsh

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THE SAME SIMPLE TECHNIQUE FOR BOTH

1. A LITTLE POWDER



2. A LITTLE URINE

COLOR REACTION IMMEDIATELY

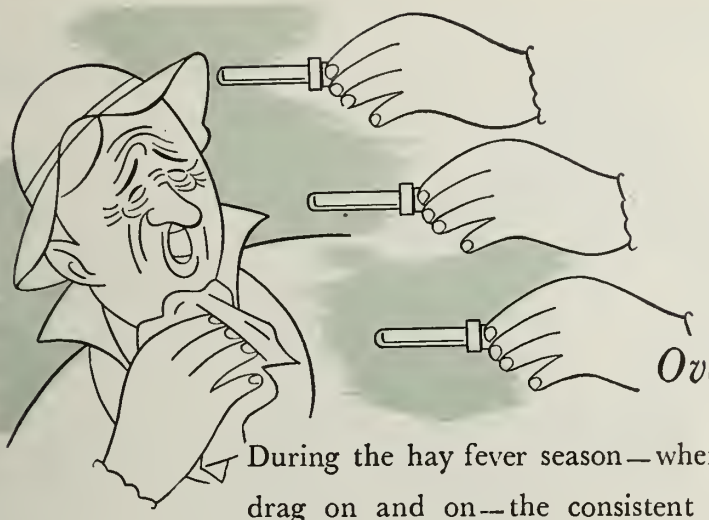


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NUTRITION AND THE TIME FACTOR

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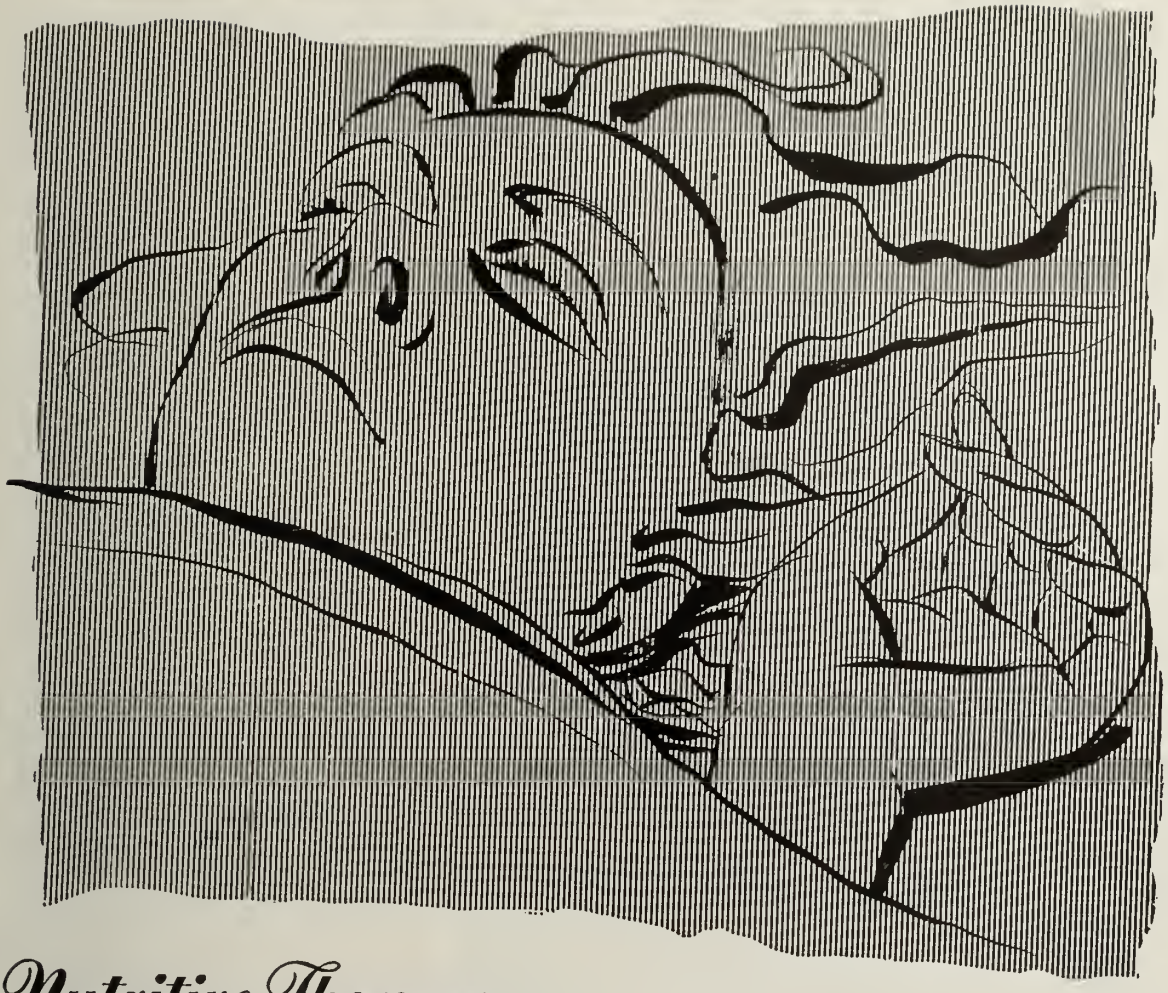


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(1). Spies, Tom D.; Cogswell, Robert C., and Vilter, Carl: J.A.M.A. (Nov. 18) 1944. Spies, Tom D.: Med. Clin. N. Am. 27:273, 1943. (2). Jolliffe, Norman, and Smith, James J.: Med. Clin. N. Am. 27:567 (March) 1943.

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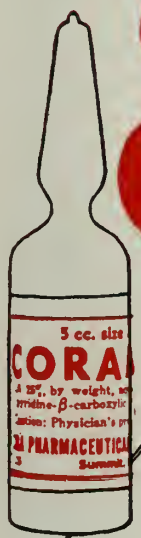
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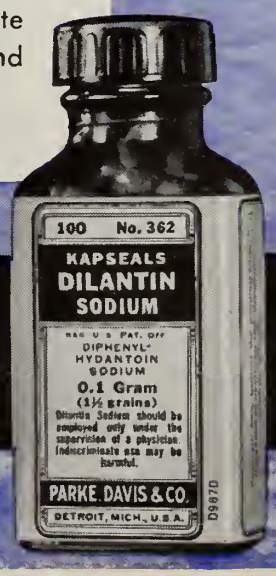
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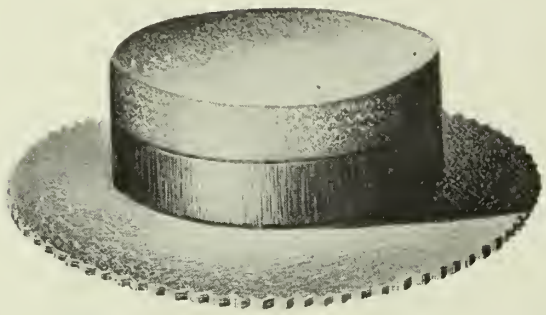
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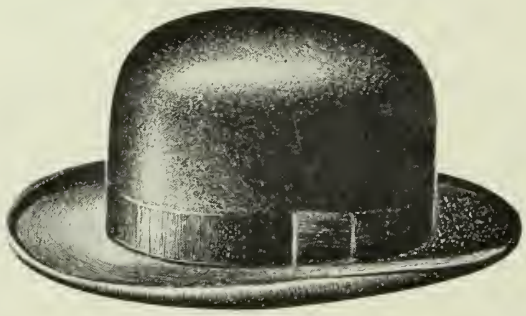
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Fractures—Frank D. Dickson, Kansas City, Chairman (1946); W. R. Bohne, St. Louis (1947); J. Albert Key, St. Louis (1947); James D. Horton, Springfield (1945); J. R. Elliott, Kansas City (1945).

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Lockwood, S. J.; White, W. L., and Murphy, F. D.: The Use of Penicillin in Surgical Infections, Ann. Surg. 120:311 (Sept.) 1944.

Kenney, J. F.: Report of a Case of Staphylococcus Bacteremia Treated with Sulfadiazine and Penicillin, Rhode Island M. J. 27:663 (Dec.) 1944.

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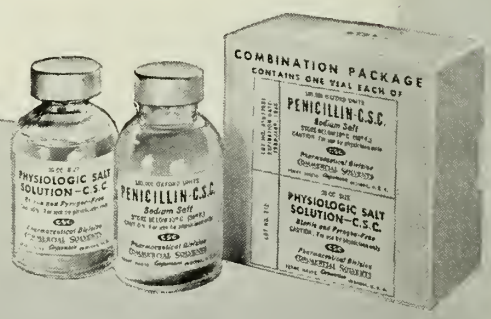
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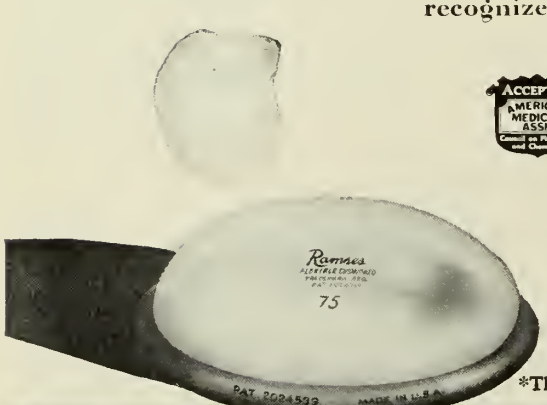


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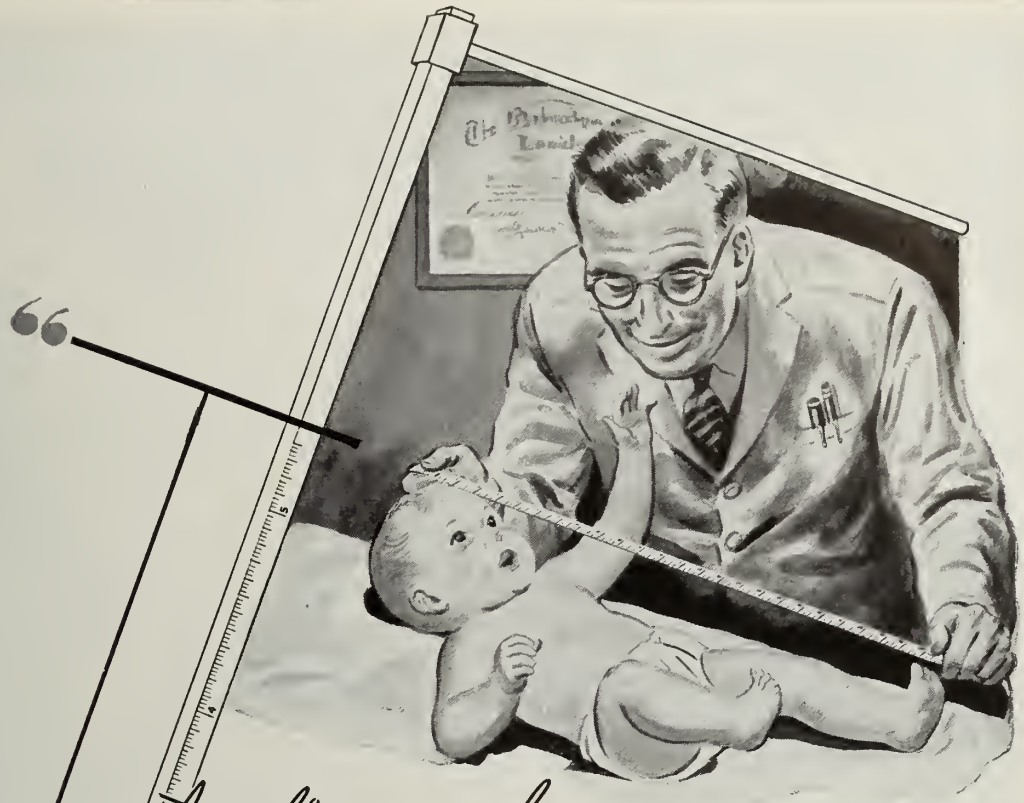
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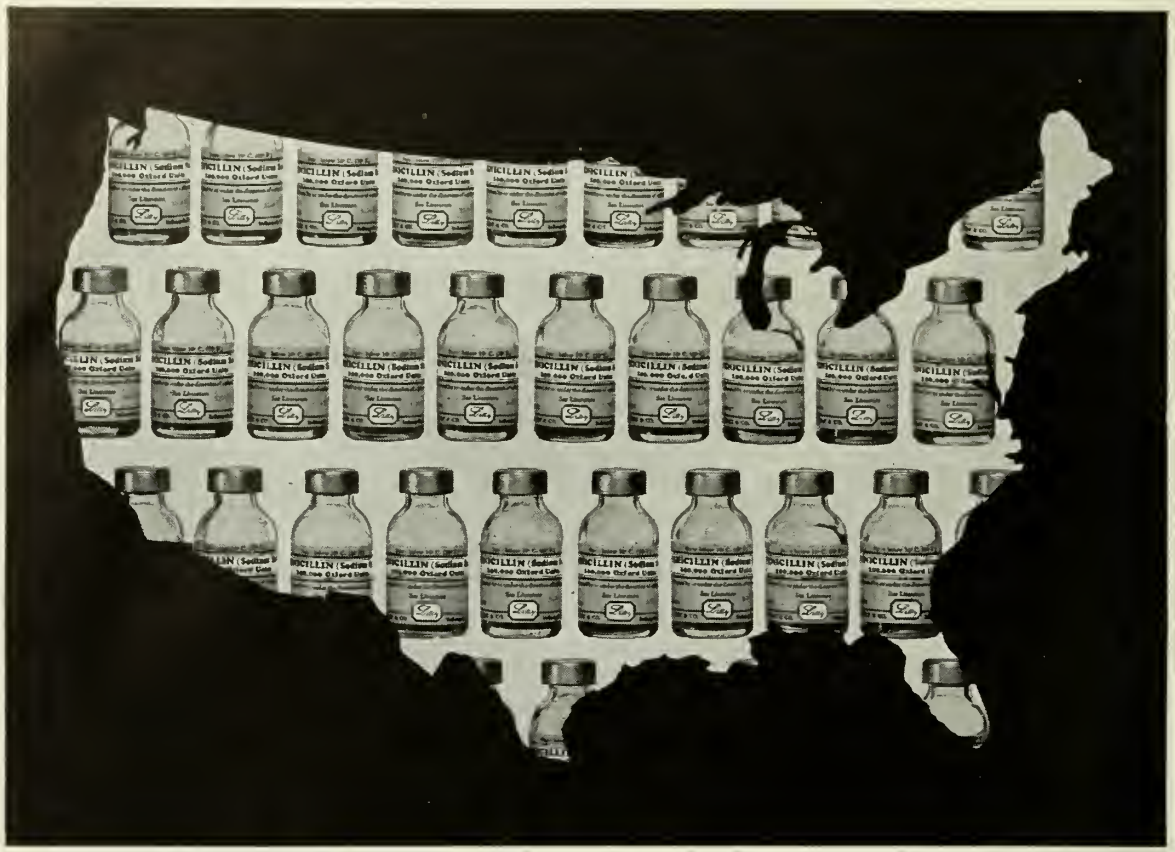


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OF THE

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THIOURACIL

ITS USE IN HYPERTHYROIDISM

DANIEL L. SEXTON, M.D.
AND
MOISE LEVY, M.D.
ST. LOUIS

The history of the development of thiouracil and related compounds goes back several years. In 1928, Chesney, Clawson and Webster[1] reported on the goitrogenic effect of cabbage in rabbits associated with a persistent decrease in the basal metabolic rate. Kennedy and Purves,[2] in 1941, restudied this phenomenon by feeding rats on a diet of bassica seeds and they too noted marked goitrogenesis. Kennedy[3] investigated this problem further and came to the conclusion that the active agent in the cabbage seed was a thiourea derivative. In testing thiourea and allylthiourea he found both to exert a marked goitrogenic effect in animals. Independently, and while studying the effect of the B complex vitamin on the nutrition of rats, the MacKenzies and McCollum[4] observed that rats, after being fed large doses of sulfaguandine over a period of time, invariably developed goiter. This was studied further and it was found that other members of the sulfonamide group induced similar changes in the thyroid and that sulfadiazine was the most active in this respect. A comparison of the goitrogenic effect of the sulfonamide group of drugs with the thiourea group revealed that the latter was considerably greater in its effect on the thyroid gland. Astwood,[5] after testing the goitrogenic effect of more than 100 derivatives of thiourea, found thiouracil to be the most active compound.

MODE OF ACTION

The exact biochemical action of thiouracil is not known at this time.[6] However, certain general statements may be made concerning its mode of action on the thyroid gland. In brief, it can be said that the drug interferes with the normal synthesis of the thyroid hormone, probably by interfering with the normal iodine metabolism within the gland proper. By preventing the formation of thyroxin, changes in the hypophysis have been observed by Williams,[7] who has reported these changes to be similar to those which occur following thyroidectomy. Such changes consist of a decrease in eosinophils and an increase of the basophils, with considerable vacuolation of the latter. The chief functional change consists of an increase in secretion of the thyrotrophic hormone of the hypophysis, which stimulates the thyroid gland to hyperplasia and increased vascularity.

Thiouracil has been used widely in the treatment of thyrotoxicosis, and it is generally agreed that this drug is a profound depressant of the thyrotoxic state.[8,9,10,11,12] In the treatment of Graves' disease, in which iodine therapy has not previously been employed, there is regression of thyrotoxic symptoms noted within the second week after beginning treatment while, in the adenomatous goiter, improvement may be expected as a general rule from the fourth to the sixth week, although occasionally it is longer. In either type of thyrotoxicosis, iodine-treated cases are slower to respond. This is explained on the theory that either the supply of preformed thyroxin, or thyroxin undergoing synthetization, whatever the case may be, must first be exhausted before the full effect of thiouracil is exhibited. Desiccated thyroid also has been found to inhibit the effect of thiouracil.

TOXIC EFFECTS

Toxic reactions of all types number between 10 and 12 per cent of all cases treated.[13] Of the reactions reported, agranulocytosis and jaundice are the most serious. Leukopenia with relative lymphocytosis has been observed. Fever, urticaria, morbilliform rash, edema, diarrhea and swelling and

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Observation on patients at St. Louis City Hospital.
Thiouracil supplied through the courtesy of E. R. Squibb & Sons and Eli Lilly and Company.
Physician, Unit II (St. Louis University School of Medicine), and Resident Physician, St. Louis City Hospital.

tenderness of the submaxillary and parotid glands also have been reported. There is no doubt but that these toxic reactions have created a degree of fear in the use of this drug. Some of the reactions, such as edema, urticaria or morbilliform rash, are probably the result of true sensitivity to the drug. A suggested plan to test the sensitivity to this drug is to prescribe a small dose (0.2 grams) for one or two days, then observe the patient for a few days before continuing treatment. An estimation of the white count before and shortly after the institution of treatment will detect a tendency to leukopenic reaction. Dosage is an important factor in reactions. While it was formerly thought that as much as 2 grams of the drug daily was a desirable dosage, experience has proved that it is not necessary to give more than 0.4 or, at the very most, 0.6 grams a day. Fever, leukopenia, and one case of jaundice were encountered by one of us in another series,[14] none of which proved serious, subsiding as the drug was withdrawn. No reactions were encountered in the group of patients herewith reported.

This series of ten cases was hospitalized and observed for a period of at least ten weeks. Five of the ten patients had severe cardiac complications and were hospitalized because of cardiac decompensation. Two of the patients were suffering from severe thyrotoxicosis. All patients had detailed examinations. Laboratory studies consisted of blood morphology, Kahn precipitant test, blood sugar, nonprotein nitrogen and liver function tests (cephalin cholesterol-flocculation test, hippuric acid synthesis, blood cholesterol and bromsulfaphthalein retention test). Basal metabolic determinations were made twice weekly, roentgen ray examination of the chest as indicated and serial electrocardiograms completed the records. White blood counts were made biweekly. Of the ten cases studied, eight showed good results. One of the two who failed to respond suffered from a true psychosis; the other probably did not have hyperthyroidism but had hypermetabolism associated with a hypertensive syndrome and moderate cardiac decompensation. Detailed reports of the more instructive cases follow.

CASE REPORTS

Case 1. E. P., aged 19, white female, was admitted to St. Louis City Hospital on October 19, 1944, with the complaints of goiter of six months' duration, nervousness, decreased tolerance to heat and moderate weight loss. Examination showed noticeable restlessness. There was a diffuse goiter of moderate size. No bruit was audible over the thyroid vessels. Although the palpebral slits were widened, there was no exophthalmos. Pulse rate was 110 and the blood pressure 134/64. Basal metabolic rate after a few days' hospitalization averaged plus 25 per cent. Response to thiouracil therapy and course while in the hospital are shown in figure 1. Subsequently, with a daily dosage of 0.1 gram, symptoms returned, and in a few weeks the basal metabolic rate had increased to plus 26 per cent. Increasing the dosage to 0.4 gram a day brought about symptomatic control and the basal metabolic rate receded to plus 8 per cent. The present dosage of thiouracil is 0.2 gram a day, and thyrotoxicosis is well controlled.

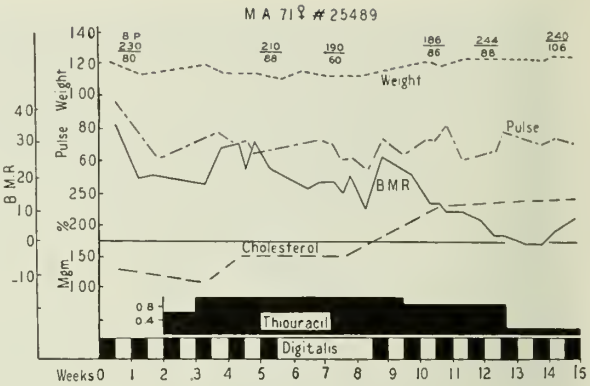


Fig. 1. Case 1. Early diffuse toxic goiter. Good response to thiouracil. Return of thyrotoxic symptoms on dosage of 0.1 gram a day. Symptoms subsequently suppressed on 0.4 gram a day. Symptom free on maintenance dosage of 0.2 gram daily.

Discussion: This case represents an instance of early Graves' disease with moderate toxicity. Response to thiouracil was quite satisfactory but on an inadequate dosage symptoms returned. Thyroid function again was reduced to normal when the dosage of thiouracil was increased. Unless this patient stabilizes after a longer period of treatment, surgery is deemed advisable.

Case 2. (Figure 2.) J. L., aged 17, white female, was admitted to St. Louis City Hospital on July 14, 1944, with the complaints of nervousness, insomnia, weakness, swelling of the neck of one and one half years' duration and excessive appetite with considerable weight loss. Proptosis had been noted for the last two to three months. Menses had been uneventful, occurring regularly since onset at the age of 15. Examination showed facial expression was one of anxiety; there was definite exophthalmos, more so on the right than on the left; there was lid lag present and inability of the eyes to converge. The thyroid gland was diffusely enlarged to moderate degree. There was a palpable thrill and loud bruit audible over the superior poles of the gland. The heart was accentuated, rate 120, but regular. The blood pressure was 140/76. Basal metabolic rate was 65 per cent. The only other laboratory study that was abnormal was the blood cholesterol, which measured 90 mg. per cent.

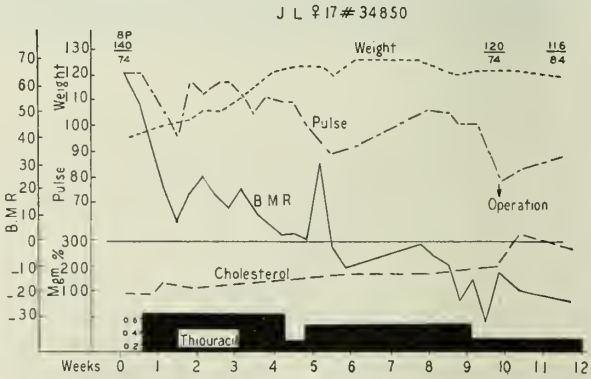


Fig. 2. Severe Graves' disease. Excellent preoperative preparation with thiouracil. No iodine. Operation uneventful.

Treatment: The initial dosage of thiouracil was 0.4 gram a day. The patient's course is outlined in figure 2. Although the basal metabolic rate receded from plus 65 per cent to plus 8 per cent in twelve days, systemic improvement was not as rapid, even though she was ambulatory after the first two weeks in the hospital.



Fig. 3. Case 2. Patient aged 17. Upon entrance to hospital with basal metabolic rate of plus 65 per cent. Nine weeks following administration of thiouracil, note reduction in size of thyroid gland and apparent diminshed exophthalmos. Basal metabolic rate of minus 12 per cent.

The patient's general condition was best when the basal rate measured minus 16 per cent. Surgery was deemed advisable but was delayed until after the Christmas holidays which the patient spent at her home. In January 1945, subtotal thyroidectomy was performed by Dr. D. J. Verda. As an index of general improvement, the weight had increased from 93 pounds upon entrance to 120 pounds at time of operation. Thrill and bruit had

disappeared and the gland was definitely less prominent, as shown in the accompanying photograph (fig. 3.) It was generally agreed that exophthalmos had receded. No iodine was given this patient prior to operation and the operation was uneventful, there being no undue vascularity or postoperative upset. A mild reaction of short duration occurred about ten hours after operation, but this could not be considered unusual.

Microscopic report is as follows: "The acini are large, filled with pale staining colloid and lined by flat epithelium. This type of picture predominated in the sections. Small areas scattered through the sections show a marked hyperplasia of the epithelium lining the acini with numerous folds in the epithelium. Small lymphocytic accumulations are seen about the hyperplastic areas. Those large acini with hyperplastic epithelium contain uniformly pink staining acini which completely fills each acinus. Some small areas are present in which the acini are very small and are almost obliterated by hyperplastic epithelium and the colloid is light in color, vacuolated and scant in amount. The sections show focal areas of hyperplasia with much relatively normal thyroid tissue. No adenomatous areas are noted. Diagnosis: Thyroid hyperplasia, focal."

Six weeks following operation the basal metabolic rate was minus 12 per cent and the patient's progress was considered very satisfactory.

Discussion: In this case of severe Graves' disease, the response to thiouracil therapy was as dramatic as might be expected from the best results with iodine. The effect of the drug was lasting and depressed the basal to minus 16 per cent, at which time the patient was in her best general physical condition. Attention is called to the fact that this patient was not given iodine as a preoperative measure; that there was no technical difficulty at the time of operation nor unusual postoperative reaction. Pathologic specimen was not unlike that seen in cases previously treated with iodine.

Case 3. (Figure 4.) E. R., aged 46, white female, entered St. Louis City Hospital on July 3, 1944, with the complaints of nervousness, weight loss of 27 pounds associated with good appetite, palpitation and occasional swelling of the feet and ankles. Examination showed patient was restless, poorly developed, weighing 81 pounds, with questionable exophthalmos, but definite widening of the palpebral slits and inability of the eyes to converge. Thyroid gland was diffusely enlarged to moderate degree with a bruit audible over both superior thyroid arteries. The palms were warm and moist. The heart was accentuated, rhythm regular, pulse rate 108 and the blood pressure 166/80. Basal metabolic rate ranged between plus 70 and plus 74 per cent.

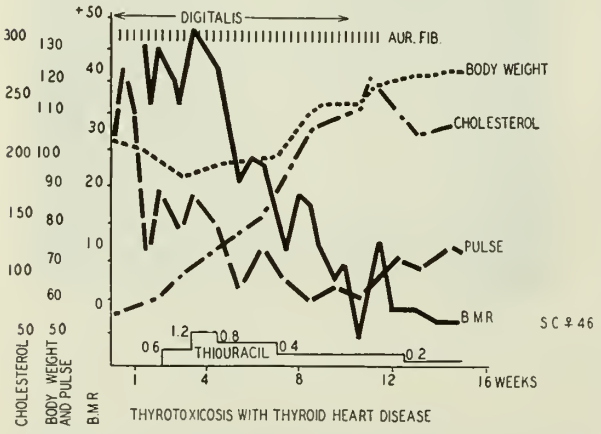


Fig. 4. Case 4. Diffuse toxic goiter treated with combined Lugol's solution and thiouracil. Note rise in basal metabolic rate when iodine was discontinued followed by subsequent fall on thiouracil alone.

Treatment: The early treatment of this patient was Lugol's solution, 45 drops a day. After eight days the basal metabolic rate was plus 37 per cent. Iodine was continued and thiouracil added, 0.6 grams a day. One month following iodine and thiouracil therapy, the basal metabolic rate averaged plus 14 per cent. At this point iodine was discontinued and from figure 4 it will be noted that there was a subsequent rise in the basal metabolic rate. After another four weeks, the basal metabolic rate approached normal and the patient made satisfactory progress.

Discussion: Here is presented a case in which iodine and thiouracil were combined after an initial satisfactory response to iodine therapy alone. The immediate rise in basal metabolic rate following the discontinuance of iodine is attributed to the overproduction of thyrotropic hormone, the effect of which, up to that point, had been neutralized by iodine. Until all the previously stored iodine in the gland had been utilized and thyroxin storage depleted, thiouracil effect was delayed. Maintenance dosage of thiouracil in this patient was 0.2 gram daily. After six months she has remained symptom free.

Case 4. (Figure 5.) S. C., aged 46, white female, entered St. Louis City Hospital on May 26, 1944, with

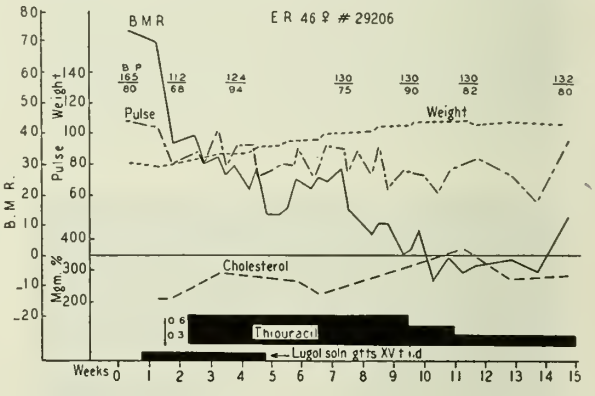


Fig. 5. Thyrotoxic heart with auricular fibrillation. Regular rhythm and cardiac compensation once established, maintained on thiouracil alone.

the complaints of nervousness and weakness for the last two years, weight loss of 40 pounds during that time, recent shortness of breath on the slightest exertion and cardiac palpitation. Examination indicated marked cardiac decompensation; there was marked dyspnea, orthopnea and rapid auricular fibrillation. The blood pressure was 174/76. The heart was enlarged to the left and downward; moist rales were present through both lung bases. The liver was down three fingerbreadths and there was three plus edema. There was nodular enlargement of both lobes of the thyroid to a moderate degree. Roentgen ray examination of the chest showed the thyroid gland to extend intrathoracically. The average of several basal metabolic determinations was plus 74 per cent. Laboratory studies were within normal limits with the exception of the blood cholesterol, which measured 70 mg. per cent. (Normal from 130 to 200 mg. per cent.) The electrocardiogram confirmed the clinical impression of auricular fibrillation. Upon entrance treatment was absolute rest, digitalis therapy and mercurial diuretics with results that were highly satisfactory. Twenty-four days after entrance, thiouracil therapy was instituted. Progress is indicated in figure 5. Fibrillation subsided twelve weeks after entrance. After six months the heart rhythm has remained regular and the patient has been compensated fully without digitalis. The maintenance dosage of thiouracil has been 0.2 gram a day since December 1944. There has been a weight gain of 42

Table 1. *Thiouracil in Hyperthyroidism.*

Case	Age	Sex	Type	Pulse		Blood Pressure		Weight		B.M.R.	
			Goiter	Before	After	Before	After	Before	After	Before	After
E.P.	19	F.	Diffuse	104	80	134/65	120/78	100	118	+27	+3
J.L.	17	F.	Diffuse	120	80	140/75	120/75	83	122	+65	−13
E.R.	48	F.	Diffuse	106	76	154/72	130/80	78	109	+70	−2
S.C.	46	F.	Nodular	70	75	174/80-70	140/82	91	125	+40	−2
M.A.	71	F.	Nodular	75	70	250/130	220/110	114	124	+25	−1 to +7
M.F.	59	F.	Diffuse	75	65	140/70	140/70	121	125	+27	0
I.F.	62	F.	Nodular	70	70	200/116	194/126	130	133	+30	+17
I.L.	43	F.	Diffuse	128	82	140/84	150/	113	111	+45	−3
O.A.[a]	56	F.	Nodular	90-100	90-96	220/130	154/96	212	207	+40-+50	+26-+40
M.H.[b]	69	F.	Nodular	84	84	130/88		107	107	+26	+27

Blood	Cholesterol	Thiouracil			Size of Gland	Duration of Tr.		Result
Before	After	Dosage (gms.) Initial	Maint.	Total	After Treatment	To Normal B.M.R. (days)	Total (mos.)	
194	195	0.6	0.2	31	Larger	22	4	Good
94	192	0.6	0.2	44.8	Smaller	37	3	Good
200	370	0.6	0.2	44.4	Sl. Smaller	60	3	Fair
70	168	0.8	0.1	103	Sl. increase Later decreased	71	7½	Good
137	238	0.6	0.2	76.8	No change	78	3	Good
98	162	0.6	0.1	11.4	No change	22	2½	Good
334	406	0.6	0.4	52.0	No change	75	5	Fair
134	233	0.4	0.3	19.6	No change	39	6	Good
215	208	0.6		44.0	No change		10 wks.	Poor[a]
231		0.4		36.0	No change		13 wks.	Poor[b]

a. Diagnosis of toxic adenoma questioned since patient failed to respond to drug. Hypermetabolism may have been of cardiac origin.
b. Patient confused throughout period of treatment; psychosis undisputed.
*Microscopic Section—not unlike that found in Iodine-treated thyroid.

Toxic Reactions	Remarks
None	Symptoms recurred on 0.1 gm. Controlled again by larger dosage.
None	Patient operated. Course uneventful.*
None	Lugol's before thiouracil.
None	Auricular fibrillation on entrance. Normal mechanism after 9 months without digitalis.
None	Digitalis continued. Heart compensated.
None	Digitalis continued. Heart compensated.
None	Digitalis continued. Only fair compensation.
None	Anxiety state—improved.
None	Hypertensive syndrome; no change.
None	Psychosis—unaltered.

pounds over her lowest weight recorded following diuresis. The basal metabolic rate is plus 8 per cent, pulse rate 76 and the blood pressure 156/80. This patient carries on her regular household activities.

Discussion: This case presents an instance of nodular toxic goiter with thyrotoxic heart in which the response to thiouracil is most gratifying. Surgery would not have been considered in this case under any circumstance at the time of entrance. It is questionable whether or not iodine could have been administered over a long period with benefit. While symptoms of thyrotoxicosis are now under control with thiouracil, surgery is being considered in view of the cardiac complication and for fear that the patient may not continue under observation.

Case 5. (Figure 6.) M. A., aged 71, white female, was admitted to St. Louis City Hospital in July 1944, having been referred for treatment of hypertensive heart disease. There were complaints of palpitation, vertigo and headache. Examination showed that there was marked dyspnea and orthopnea, and grade II edema. The heart was enlarged to the left and there was a systolic apical murmur. Cardiac rhythm was

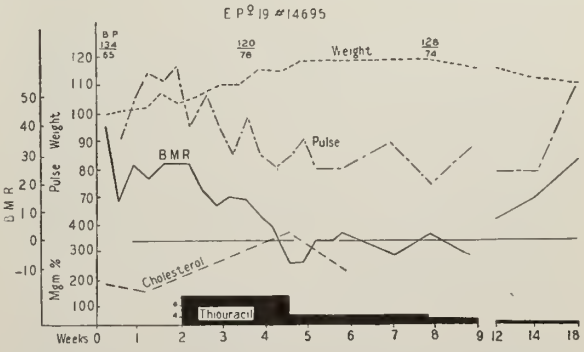


Fig. 6. Thyrotoxicosis with permanent cardiac damage.

regular, pulse rate 96. The blood pressure measured 270/130. After two weeks of digitalic therapy and bed rest, the heart was fairly well compensated. There was a small nodule measuring about 2.5 cm. in the right lobe of the thyroid. Several basal metabolic rates ranged from plus 20 to plus 36 per cent. Repeated follow-up electrocardiograms showed the PR interval ranging from 0.16 to 0.22 seconds and left ventricular preponderance. There was no evidence of intrathoracic goiter in the chest film. On thiouracil therapy the basal metabolic rate receded to normal, as shown in figure 6. Digitalis therapy was continued.

Discussion: This patient had several admissions to the hospital because of hypertensive heart disease. Although a nodular goiter was present, cardiac damage was considered permanent and the patient's general condition precluded surgery. Response to thiouracil therapy was slow, as was expected in this case of nodular goiter. This patient is to be carried along indefinitely on thiouracil if no untoward reaction occurs for it is hoped that by suppressing thyroid overactivity the work of the damaged heart will be minimized.

SUMMARY AND COMMENTS

Thiouracil gives promise of being of real value in the treatment of thyrotoxicosis. It has advantages as a preoporative measure and as medical treatment for this entity. As a preoperative measure, its effect is every bit as dramatic as iodine in the early stages of treatment, and more valuable than iodine when prolonged treatment is required for, as long as the drug is continued, symptoms are suppressed. Furthermore, the basal metabolic rate can be depressed below normal limits, which very often is advantageous. In Graves' disease, a decline in basal metabolic rate may be expected within two weeks while, in toxic adenoma, four to six weeks are required.

In the nonsurgical treatment of hyperthyroidism, thiouracil should prove more efficaceous than iodine or roentgen ray therapy. In those instances in which surgery is contraindicated or refused, and in hyperthyroid states in which goiter is not demonstrable, its lasting effect is an advantage. In recurrent hyperthyroidism, it has been used with gratifying results. In hyperthyroidism of pregnancy, and hyperthyroidism of adolescence, in which in most instances it is desirable to postpone surgery and prolonged treatment is needed, its advantages are obvious.

Unfavorable reactions, of which agranulocytosis and jaundice are serious, demand that the drug be used with caution.

Sufficient time has not elapsed to determine whether or not the patient with hyperthyroidism can be satisfactorily stabilized with thiouracil to avoid surgery. Time also will tell whether or not prolonged use of the drug causes detrimental constitutional changes, particularly to the other endocrine structures.

Thiouracil, discretely employed, is considered a valuable drug in the management of thyrotoxicosis.

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CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 79

PRESENTATION OF CASE

The patient was a 57 year old, married, white salesman who was first admitted to the private medical service of the Barnes Hospital on January 23, 1945, and was discharged on February 6, 1945. He was readmitted to the hospital on the ward medical service on May 6, 1945, and died three days later.

Chief Complaints.—Weakness, productive cough, shortness of breath and fever.

Family History.—The patient's father was said to have died from high blood pressure.

Past History.—General health had been fairly good until the onset of the present illness. The patient had influenza in 1918 and a severe attack of pneumonia two years prior to his present illness. He remembered no childhood diseases and had undergone no operation. The patient had had all of his teeth removed five years prior to his present illness and since then had worn a denture. According to the patient's mother he was known to have had a cavity in his lung at the age of 8, associated with severe cough. He was kept out of school for one year but apparently recovered and had no further symptoms. The patient occasionally was

Correction: On page 559 of the September 1945 issue, on Case 78, Dr. Donald Bottom is quoted that "Radiotherapy is the conventional treatment in tumors of the parotid gland. . . ." This statement is in error and should read "The treatment of choice for mixed tumors of the salivary glands is surgical removal. If the tumor is inoperable, radiotherapy may be used."

bothered by "heart burn," coming on one to two hours after meals, which was relieved by soda. This discomfort occasionally would awaken him at night. One year previously, after the patient had lost considerable weight, his wife insisted that he be examined by a physician and sugar was found in his urine. Since that time he had been on a diabetic diet and had been receiving insulin. At the time of admission to the hospital he weighed 125 pounds whereas he had weighed 155 pounds three years before. Six years previously, the patient apparently had a "stroke" during which he developed ptosis of the left eye, drooping of the left side of the face, and slight spastic paralysis of the left arm and leg. During the attack there was some disturbance of speech but the signs and symptoms all subsided within one month and the patient returned to work two weeks later.

Personal History.—The patient was a salesman who had always lived in St. Louis. His diet was good, and he smoked and drank only in moderation.

Present Illness.—The patient dated his present illness from an attack of pneumonia twenty-one months before his first admission to the hospital. During this attack he suffered sudden onset of fever and chills followed by severe cough. The patient had given five blood donations to the Red Cross during the preceding seven months. He was confined to bed for two weeks and was given no sulfonamide treatment. Following this attack the patient began to lose weight and about a month later he was examined again by his physician and told that he had diabetes. He was placed on a diabetic diet but was given no insulin. A few months before admission he suffered another attack of pneumonia with the same symptoms as before. Again he was confined to bed for two weeks. Because of a persistent cough he was advised to stop smoking but continued and, for the first time, he noted that moderate exertion produced severe dyspnea. About two weeks before admission the patient began to complain of increasing cough that was productive of thick, mucoid sputum. He also noted an increase in dyspnea, weakness and fever. Ten days before entering the hospital, the patient cut his finger on a piece of glass and later had to have the lesion drained surgically because of infection. Before admission, the patient had one severe attack of paroxysmal dyspnea which his physician considered to be an attack of bronchial asthma. The patient had had no previous attack of this nature and there was no history of previous allergy. He continued to have low grade fever and on the evening of his admission suffered another severe attack of dyspnea. For this he was given adrenalin with some relief, but later was admitted to the hospital.

Physical Examination.—Temperature 103.2 F., pulse 100, respirations 32 and blood pressure 120/100. The patient was sitting propped up in bed and was moderately dyspneic. He looked older than his stated age. The patient's respirations were described in no further detail. Cough was not mentioned. A noticeable arcus senilis was present in each eye. The mouth was edentulous, the chest was described as "emphysematous" and it was stated that the left chest was slightly larger than the right. The percussion note was dull over the left upper chest anteriorly and rales (type not stated) were heard at both lung bases. The heart seemed to be somewhat enlarged but percussion was difficult because of the emphysema. A harsh systolic murmur could be heard over the entire precordium and was maximum at the apex. One observer described a systolic friction rub audible just inside the cardiac apex. The rub disappeared on deep inspiration. The abdomen was soft. Neither the spleen nor the liver could be felt. The neurologic examination was normal except for slightly hypoactive reflexes. Rectal examination was not recorded. There was a bandage on the right middle finger.

Laboratory Findings.—Blood count: red blood cells 5,200,000; hemoglobin 14.7 gms.; white blood cells 18,700; differential count: stab forms 7 per cent, segmented neutrophils 71 per cent, lymphocytes 19 per cent, monocytes 3 per cent. Urinalysis: specific gravity 1.025, reaction acid, albumin negative, sugar trace; microscopic, occasional white blood cell and hyaline cast per high powered field. Stool examination showed the stool normal, Guaiac test negative. Blood Kahn reaction was negative. Blood chemistry: nonprotein nitrogen 24 mg. per cent, fasting blood sugar 115 mg. per cent, 10:30 a. m. blood sugar 222 mg. per cent, sulfadiazine blood level 9.5 mg. per cent. Sputum examination revealed no acid-fast organisms. Type 17 pneumococcus was isolated on culture. Venous pressure was 80 mm. saline. Vital capacity was 1.3 liter. Allergy skin tests were all negative. Electrocardiogram showed low voltage in leads 1 and 3, slight slurring of QRS complexes, rounded S segment in lead 3 and T waves that were diphasic in lead 2 and inverted in lead 3. The interpretation of this electrocardiogram was "myocardial damage." Roentgen ray examination of the chest showed "The cardiac silhouette is enlarged to the left and slightly to the right. The aorta is lengthened. The hilus shadows are prominent. The lung markings are coarse and feathered and extend far out throughout both lung fields. There is some thickening of the interlobar pleura on the right side."

Course in Hospital.—The patient was given approximately 25 units of insulin a day to control the diabetes and was treated with sulfadiazine. His fever and leukocytosis subsided over a period of about forty-eight hours. On the third day in the hospital, the patient suffered a severe attack of dyspnea. When seen by the assistant resident, the patient was short of breath, orthopneic and cyanotic. He had no pain and stated that this attack was similar to the previous "spells of asthma" that he had had. Pulse rate was only 80, respirations were 40, the blood pressure was 160/110 and there

was no fever. Numerous dry wheezes could be heard over both lung fields and were marked during expiration. Many rales, both inspiratory and expiratory, were heard, particularly over the right lung. The patient was sweating profusely and there was blotchy cyanosis over the abdomen. The heart sounds were obscured by the respirations. The patient was given large amounts of both aminophylline and adrenalin without effect. Finally he was given ¼ grain of morphine and 1.2 gm. of cedilanid. During the attack, oxygen therapy was applied continuously. Following the rapid digitalis therapy the patient improved markedly but, about an hour later, he again became somewhat dyspneic and rales and expiratory squeaks could again be heard over the right lung. Aminophylline, 0.25 gm., was given and finally the symptoms subsided completely. The following morning many rales could still be heard throughout the chest but the patient seemed to be in no acute distress. Digitalis medication was continued. At the time of this attack the patient's white blood count was 13,200 and the differential count showed 12 per cent stab forms, 68 per cent segmented neutrophils, 19 per cent lymphocytes and 1 per cent monocytes. The white blood count two days earlier had been 6.100. On the day following the attack the decholin circulation time was 15 seconds. The patient continued to improve. The rales became less conspicuous over his lungs and he was finally discharged after two weeks in the hospital. Electrocardiogram taken at the time of discharge showed no changes except those produced by digitalis. After being digitalized, the patient was discharged on a maintenance dose of digitalis.

Interval History.—Following discharge the patient was completely well until the night of his second hospital admission when he suddenly lost control of his tongue and the use of his right arm and leg. When seen by the attending physician he was breathing "heavily," could talk only poorly and at times was irrational. He was admitted to the hospital for the second time at 1:00 a. m. on May 5, 1945. Shortly before admission the patient's attending physician had given him ¼ grain of morphine, 0.2 gm. aminophylline and had applied tourniquets to the extremities because of the severe dyspnea. At the onset of this attack the patient complained of cramping in his right hand and arm and his family noted that his right hand was contracted sharply. Oral sugar failed to relieve the symptoms.

Second Hospital Admission.—May 5, 1945, to May 8, 1945.

Physical Examination.—Temperature was 37 C., pulse 104, respirations 20 and blood pressure 138/80. The patient was an elderly white man breathing without difficulty who seemed to be somewhat cyanotic. He responded poorly to questions. His right arm was flexed at the elbow and his right hand was clenched. Both the arm and the hand were moderately stiff. He did not move his right leg as much as his left. The pupils were pin point on admission but after dilatation with homatropine, the fundi were seen to be normal. The chest was again described as "emphysematous," the diaphragm being relatively low. There were many moist rales heard at both lung bases. The heart was enlarged to percussion. The left border of cardiac dulness extended 9 cm. to the left in the fifth interspace and 2 cm. to the right in the third interspace. The rhythm was regular. The heart sounds were of good quality. The second pulmonic sound was louder than the second aortic sound. No murmurs were described. The liver was felt two finger breadths below the costal margin. The spleen was not palpable. The rest of the abdomen was soft. Peripheral arteries felt sclerotic. The deep reflexes could not be obtained on the right and seemed hypoactive on the left. There was no Babinski sign and the neck was not stiff. Rectal examination was not done.

Laboratory Findings.—Blood count: red blood cells 5,700,000; hemoglobin 16 gm.; white blood cells 13,800, differential count: basophils 2 per cent, stab forms 6 per cent, segmented neutrophils 68 per cent, lymphocytes 18 per cent, monocytes 4 per cent. Urinalysis: specific gravity 1.014, reaction acid, albumin 1 plus, sugar 1 plus, acetone 0; microscopic examination showed rare hyaline casts. Stool was normal, dark brown in color. Guaiac test was negative. Blood Kahn reaction was negative. Bleeding and clotting times were normal. Electrocardiogram: "Myocardial damage and left axis deviation."

Course in Hospital.—The patient was given positive pressure oxygen therapy immediately and was placed in a cardiac bed. Two hours after admission he had two clonic convulsions which were generalized, involving both sides of the body. After intravenous sodium amytal therapy the convulsions ceased, but soon thereafter the patient went into shock and the blood pressure was unobtainable for a period of five hours. During this period only a few basal rales were heard in the lungs. At the end of five hours the pulse became stronger, the blood pressure became normal and the cyanosis disappeared. Several hours later the patient was again alert, talked rationally and for the first time moved his right arm and right leg. Signs of right facial paralysis which had been present disappeared completely. There were occasional periods of apnea which disappeared when the oxygen therapy was stopped. The fasting blood sugar taken on this day was 239 mg. per cent and the nonprotein nitrogen was 33 mg. per cent. During the evening of the second day the patient complained that his right arm and leg were numb and that he could not move them as well as the left. At 2:00 a. m. the intern was called because the patient was having tonic convulsions involving the right arm and leg, both of which were extended. The patient's body was bent to the right. The convulsive movements continued for more than an hour during which time the patient received a total

of 200 mg. of sodium amytal intravenously. He remained quiet for the remainder of the night, but during ward rounds on the morning of the third hospital day it was noted that the patient was again having writhing movements of the right arm and leg, and that the head was turned to the right. In addition, the neurologic consultant described classical signs of left hemiplegia and suggested that the patient was suffering from a bilateral cerebral lesion. During the third hospital day the neurologic signs remained unchanged but the patient developed Cheyne-Stokes respiration. The white blood count was found to be 21,700; the differential count showed a moderate shift to the left. At 2:00 a. m. on the fourth hospital day the patient had another sudden attack of dyspnea; shortly thereafter he developed many coarse rhonchi in the lungs and tracheal rales. He responded somewhat to aminophylline therapy, strychnine and a small venesection, but died three hours later. Insulin and digitalis therapy were maintained throughout his hospital admission. The temperature rose to 38.4 C. just before death.

CLINICAL DISCUSSION

DR. W. BARRY WOOD, JR.: This patient had signs and symptoms pointing to disease of at least three organ systems, the cardiovascular system, the respiratory system and the central nervous system. The latter is the most interesting and was the most prominent during the last admission. Let us proceed logically and consider first the disease of the heart and the disease of the lungs. Dr. Olmsted, can you suggest one disease from which this patient suffered?

DR. WILLIAM OLMSTED: Diabetes mellitus.

DR. WOOD: Did the diabetes contribute to the dramatic features of the case?

DR. OLMSTED: No. It was of secondary importance in producing signs and symptoms. I would suggest also that the patient had emphysema.

DR. WOOD: Are there other suggestions?

DR. B. Y. GLASSBERG: Arteriosclerotic heart disease.

DR. WOOD: Is there any question concerning this diagnosis, Dr. Massie?

DR. EDWARD MASSIE: No. He had many signs and symptoms pointing to lesions of the heart and blood vessels.

DR. WOOD: Dr. Goldman, would you interpret for us the statement that this patient had a cavity in the lungs at the age of 8 years?

DR. ALFRED GOLDMAN: If my arithmetic is correct, this would have been in the year 1895 when Roentgen had just described what we now know as roentgen rays. I, therefore, think that there may be some question about this diagnosis.

DR. WOOD: Will the pathologist find evidence of healed tuberculosis of the lungs?

DR. GOLDMAN: No. The patient, however, had some form of pulmonary infection which showed remissions and relapses for several years. It is noteworthy that there was little in the radiograph taken on the first admission that can be interpreted in terms of chronic pneumonitis.

DR. WOOD: Six years ago this patient had symptoms pointing to disease of the brain. What is your diagnosis, Dr. Levy?

DR. IRWIN LEVY: I think he had encephalomalacia on the right side.

DR. WOOD: Dr. Smith, how would you interpret the observations made on the first admission?

DR. JOHN SMITH: The patient probably had paroxysmal cardiac failure. This is a common observation in diseases of the coronary arteries. It may closely simulate asthma.

DR. WOOD: Is this what is known as cardiac asthma?

DR. SMITH: Yes.

DR. WOOD: This man then had recurrent attacks of cardiac failure. Dr. Bottom, is the heart normal in the radiograph?

DR. DONALD BOTTOM: No. It is enlarged.

DR. WOOD: Dr. Reinhard, do you believe that pulmonary infection was a prominent part of this man's illness on his first admission?

DR. EDWARD REINHARD: No. It was probably not significant.

DR. WOOD: This man had two attacks of pneumonia in a relatively short period of time. Are there any facts in the history which give us a clue as to the reason for this?

DR. REINHARD: The diabetes may have made him more susceptible to infection.

DR. WOOD: Was there any underlying chronic disease of the lungs which may have been responsible for his second attack of pneumonia?

DR. GOLDMAN: One would have to consider chronic bronchitis and bronchiectasis. This man had a cough for several years. He also had emphysema; it may have aggravated the infection.

DR. WOOD: What is your own opinion in the matter?

DR. GOLDMAN: I believe he had emphysema and chronic bronchitis. We do not have sufficient evidence to make a diagnosis of bronchiectasis.

DR. HAROLD SCHEFF: Is not recurrent pneumonia usually associated with bronchiectasis?

DR. GOLDMAN: Usually, but not always.

DR. WOOD: Why is it important for us to know whether or not this man had bronchiectasis?

DR. GOLDMAN: If he had bronchiectasis and chronic pulmonary suppuration, the terminal illness may have been a metastatic abscess of the brain.

DR. WOOD: Dr. Carl Moore, do you agree?

DR. CARL V. MOORE: Yes. I do not believe that we can establish the diagnosis of bronchiectasis.

DR. WOOD: Is it significant that this patient had influenza in 1918?

DR. GOLDMAN: Yes. Opie and others have shown that bronchiectasis is a common sequel of influenza.

Dr. Wood: Let us pass on to a consideration of the patient at the time of the second admission. Manifestly there was some intracranial lesion. As I see it, there are three possibilities, thrombosis, hemorrhage and abscess. Dr. Levy, which one do you favor?

Dr. Levy: I saw this patient after he had gone into coma and, therefore, did not have opportunity to study him carefully. At that time I thought he had thrombi in the cerebral vessels and softening of the brain.

Dr. Wood: Did you at that time, or would you now, consider abscess of the brain?

Dr. Levy: No. The onset was too sudden.

Dr. Wood: What are the usual symptoms of brain abscess?

Dr. Levy: The onset is gradual, and there is a progressive spread of symptoms.

Dr. Wood: Why is it not cerebral hemorrhage?

Dr. Lvey: It is not hemorrhage because he did not lose consciousness.

Dr. Wood: Are there other criteria of hemorrhage?

Dr. Levy: Yes. The spinal fluid pressure is usually 350 millimeters or more and there is gross blood in the spinal fluid when hemorrhage is present. As the pressure was lower in this patient the lesion was probably softening. A small amount of blood in the spinal fluid is not pathognomonic of cerebral hemorrhage. Recurrent attacks are also unusual in cerebral hemorrhage.

Dr. Wood: Dr. Gildea, do you agree?

Dr. Edwin Gildea: Yes. The history and the course are those of cerebral softening. I would point out, however, that an occluded blood vessel may not be found by the pathologist.

Dr. Wood: May I ask Dr. Moore's opinion about this?

Dr. Robert Moore: I quite agree that an anatomically total occlusion of a vessel is not always found in association with an infarct. I believe that marked restriction of blood supply as by arteriosclerosis may occasionally lead to infarction.

Dr. Gildea: It is my impression that softening of the brain is seen more frequently in diabetes.

Dr. Olmsted: That is not true so far as I know. This man had Jacksonian epilepsy. Is this not rare in softening of the brain?

Dr. Levy: Yes. That is true, but it may occur, especially with deep lesions.

Dr. Wood: May I ask Dr. Levy to answer these questions? Why did the patient have bilateral signs; why was there shock; and why did the patient have dyspnea?

Dr. Levy: The bilateral signs are probably related to bilateral lesions. With the changes described in one hand, I would expect a lesion in the basal ganglia involving the caudate nucleus. Other signs point to a large lesion of the right hemisphere. It is possible that the lesion six years ago with recovery altered the relations. Fulton showed that there is some ipsilateral control of the body in recovery from hemiplegia. Thus, he probably had lesions in both hemispheres.

Dr. Wood: Were the lesions recent in both hemispheres?

Dr. Levy: Yes. The shock is not easy to explain on the basis of a lesion of the brain. There are certain areas, notably 6A and 6B and the hypothalamus, which exert some control over the vasomotor system. I would like to point out that this function of the brain may be greater with extremely acute lesions regardless of size. In my opinion the dyspnea was not caused by disease of the brain. There are several centers for respiratory control in the cortex, notably 6B and 13, but I have never seen paroxysmal dyspnea from lesions of these areas. Some time ago I saw a young girl who had fallen off her bicycle and had a lesion of the undersurface of the frontal lobe. She had marked hyperpnea. There are projections from these areas into the pons and the medulla.

Dr. Wood: Dr. Payne, you saw this patient. What were the signs in the lungs?

Dr. John W. Payne: The signs were those usually observed in pulmonary edema.

Dr. Wood: During the first attack the patient had a pulse rate of 80. Dr. Smith, is this usual in cardiac failure?

Dr. Smith: It can occur. However, the pulse is usually more rapid.

Dr. Wood: Can you explain a slow pulse in cardiac failure?

Dr. Smith: It is probably related to an increase in vagal tone.

Dr. Wood: Were all of the attacks experienced by this patient of cardiac origin?

Dr. Massie: Yes. I recently saw a patient who had twelve attacks of paroxysmal dyspnea thought to be due to a disease of the coronary arteries. Do you believe that cerebral embolism is a possibility in this case?

Dr. Wood: Before I answer that question, may I ask you if you think the patient had a cardiac infarct?

Dr. Massie: We do not have sufficient evidence to establish infarction, but the patient had significant disease of the coronary arteries.

Dr. Smith: I favor cerebral vascular disease for the primary lesion.

Dr. Wood: As I see it, most of the evidence supports a diagnosis of cerebral thrombosis.

Dr. Olmsted: How much real evidence do we have of arteriosclerosis of the cerebral vessels in this patient? I would be much more in favor of a diagnosis of cerebral thrombosis if we had more evidence that this man had arteriosclerosis.

Dr. Wood: There is evidence of some intracranial disease six years ago.

Dr. Olmsted: Is it not exceptional for a patient with vascular disease to go six years between attacks?

Dr. Levy: No.

Dr. Wood: What, then, is the alternative?

DR. OLMSTED: Emboli from a mural thrombus in the heart.

DR. LLEWELLYN SALE, SR.: May I put forward another idea? The evanescence of the signs and symptoms and the fact that they were bilateral suggest that this patient may have had a cerebral aneurysm.

DR. LEVY: I thought of that but do not believe there is any definite evidence for it.

DR. WOOD: What is your opinion, Dr. Gildea?

DR. GILDEA: It seems to me unlikely.

CLINICAL DIAGNOSES

Diabetes mellitus.
Emphysema.
Arteriosclerotic heart disease.
Arteriosclerosis.
Recurrent pneumonitis.
Encephalomalacia of the right hemisphere probably caused by thrombosis, possibly by emboli.
Congestive heart failure.

ANATOMIC DIAGNOSES*

Arteriosclerosis of the coronary arteries, advanced.
Healed infarcts of the posterior part of the septum and the wall of the left ventricle of the heart.
Mural thrombus at the apex of the left ventricle.
Partially healed infarcts of the spleen and kidney.
Partially healed infarct of the lower lobe of the right lung.
Arteriolar nephrosclerosis, slight.
Hypertrophy and dilatation of the heart (440 grams).
Columnar hyperplasia of the islets of Langerhans (history of mild diabetes, one year's duration).
Chronic catarrhal and purulent bronchitis.
Bronchiectasis of lower lobes, slight.
Organizing bronchiolitis.
Organizing pneumonia of lower lobe of the right lung.
Bronchopneumonia with abscess formation of lower lobe of the right lung.
Acute arteritis of smaller cerebral arteries.
Acute meningoencephalitis with miliary abscesses in left occipital lobe, left basal ganglia and right parietal lobe.
Subarachnoid hemorrhage over the left occipital lobe.

PATHOLOGIC DISCUSSION

DR. ROBERT MOORE: At the time of the autopsy, it appeared that all of the lesions in this man could be explained on the basis of cardiovascular renal disease. There were advanced arteriosclerosis, healed infarcts of the septum and left ventricle of the heart, arteriolar nephrosclerosis, hypertrophy and dilation of the heart, and large foci in the brain which were softened and grayish red in color. We did not, however, find an occlusion of a cerebral artery and the distribution of the lesions in the brain, that is, in the left occipital lobe, in the right parietal lobe and in the left basal ganglia, did not correspond with the vascular distribution.

Microscopic study of the brain showed that many of the smaller arteries were the seat of an acute arteritis and throughout the softened brain there were miliary abscesses. This is a type of meningoencephalitis usually seen in connection with subacute bacterial endocarditis.

These observations in the brain naturally directed our attention to the lungs. Grossly, we observed an organizing bronchopneumonia in the lower right lung with abscess formation. Microscopically, there were in addition slight bronchiectasis and organizing bronchiolitis.

It thus seems that this patient suffered from two separate and distinct major diseases. He had arteriosclerosis for some years and, in January 1945, an infarct of the heart formed. The degree of the healing in the infarct is consistent with the duration of five months. There is also the observation of a friction rub of the heart in January, and the heart showed pericardial adhesions over the anterior surface. These are in direct relation to the infarct of the heart and it in turn is directly related to the mural thrombus which is only partially organized. In January, or shortly thereafter, emboli were carried to the spleen and kidney where infarcts formed.

For several years he had also a slight bronchiectasis and chronic bronchitis. This apparently became more severe in April or May, shortly before admission. Bacteria were carried to the brain and there set up an acute meningoencephalitis. The patient died before there was time for an abscess to form.

The diabetes was related to few anatomic changes. There were columnar hyperplasia of the islets of Langerhans and glycogen of the cytoplasm of the cells of Henle's loop.

In summary, we submit that this patient had cardiovascular renal disease with myocardial damage, and chronic pulmonary suppuration with metastasis to the brain in the form of a focal meningoencephalitis.

CASE 80

PRESENTATION OF CASE

A white male accountant, 52 years of age, was admitted to the private medical service of the Barnes Hospital on March 9, 1945, and died on March 27, 1945.

Chief Complaints.—Left lower quadrant abdominal pain, fever, increasing weakness and loss of weight.

Family History.—Mother died after a cerebral hemorrhage; father died with "dropsy."

Past History.—The patient's general health had always been good. Besides the usual infectious diseases of childhood, he had had scarlet fever, pneumonia and typhoid fever. Fifteen years prior to his present illness his teeth had been removed;

*This is not the printer's or the proofreader's error. It is to assist the reader who wants to make up his own mind about the diagnosis but whose curiosity is too consuming.

he apparently had an osteomyelitis of the mandible for approximately one year thereafter. He had noticed slight dyspnea on exertion during the last five years; there had been no associated edema or chest pain.

Personal History.—The patient was a native of Kentucky who had lived in the Middle West all his life. He was a college graduate and had worked for many years as an accountant. He had been married for sixteen years; there were no children. His diet was good; he smoked and used alcohol in moderation.

Present Illness.—Two years previously, this man experienced in the left lower quadrant of his abdomen a dull aching pain which was occasionally punctuated by a sharp, shooting pain radiating to his arms. Relief was obtained after he had taken castor oil and had defecated several times. Soreness, however, persisted for several days. He remained well until January 22, 1945, when he suddenly developed severe cramping pain in the left side of his abdomen. He was at work at the time and before he could get home the pain had become generalized. It doubled him up and seemed to radiate to his rectum. There was a desire to defecate, but only flatus was expelled. Because the discomfort was greater when in the recumbent position, he sat up in a chair. After several hours he had a chill and a fever of 103 F. The next day he had another chill and vomited. Morphine was required for relief of the pain. About that time he developed a severe cough which persisted for three or four days and which was productive of approximately one half cup of grey colored, foul smelling sputum per day. There was also slight chest pain along the right sternal border and occasional discomfort in the left shoulder. After four or five days, all of these symptoms subsided enough so that the patient was able to return to work. He was very constipated, however, and took large doses of castor oil for relief. Several mornings later he awoke with fever and vertigo. His physician told him there was pus in his urine and administered one of the sulfa drugs; no dysuria had been present. This time he did not return to work because he continued to have fever, soreness and distention of his abdomen, and felt weak. On February 28 his fever became higher and the abdominal pain more severe. He was taken to his local hospital in Illinois and given approximately 300,000 units of penicillin (exact dose and period of administration not stated). The fever diminished but the abdominal pain and soreness continued. He was referred then to the Barnes Hospital for diagnosis and therapy. The patient stated that his stools had become smaller in size, and cathartics had been used frequently; but he also insisted that his stools were frequently watery without catharsis. They had not been bloody or tarry. A weight loss of 30 pounds had occurred during the previous six weeks even though his appetite had remained fairly good.

Physical Examination.—Temperature was 38 C., respirations 20, pulse 80 and blood pressure 160/100. The patient was an alert, cooperative, middle-aged white male who appeared chronically ill and showed evidence of weight loss. He moved around freely in bed without great distress. An arcus senilis was present in both eyes and the fundi were described as showing "some arteriosclerosis." The mouth was edentulous. The chest was barrel-shaped with a distinct marginal flare of the ribs at the bases, and the diaphragms were low. Breath sounds were diminished in intensity; rales were not heard. The area of cardiac dulness was normal, rhythm regular, sounds of good quality, and a rough systolic murmur was heard at the aortic area and at the apex. The abdomen was flat and symmetrical; in the left lower quadrant there was tenderness with slight muscle guard and a tender movable mass thought to be sigmoid colon was palpated. The edge of the liver was felt at the right costal margin; it was soft and not tender. There was no costovertebral angle tenderness. There were general external hemorrhoidal tags. The prostate was normal but two observers felt that the tips of their examining fingers touched a firm movable mass high in the rectum; one examiner thought it extrinsic. Extremities were normal and the reflexes were physiologic.

Laboratory Findings.—Blood count: red blood cells 3,930,000, hemoglobin 12.6 gm., white blood cells 15,700, differential count: basophils 2 per cent, eosinophils 1 per cent, stab forms 8 per cent, segmented neutrophils 38 per cent, lymphocytes 33 per cent, monocytes 18 per cent. No significant qualitative changes were observed and platelets appeared adequate. On eight urinalyses the specific gravity varied from 1.011 to 1.022 and the reaction from pH 4.5 to 6.0; a trace of protein was always present as were a few white blood cells in the sediment; granular casts were described once. Catheterized urine showed a pure culture of *E. coli* on March 13, no growth on March 16. Stool examination was normal except for positive benzidine (Guaiac negative). Blood Kahn reaction was negative. Blood Chemistry: nonprotein nitrogen 17 mgms. per cent. Serologic studies: typhoid agglutination positive at 1-160, paratyphoid A at 1-160, parathphoid B at 1-80; brucella and tularense agglutinations negative. Sputum examination: no gross or microscopic description made, negative for acid-fast organisms on one occasion, showed alpha hemolytic streptococci on culture (March 16). Roentgen ray examination of the chest: (March 15, 1945). "The cardiac silhouette is considerably enlarged to the left and slightly to the right. The aorta is lengthened. The hilus shadows are prominent. The lung markings are somewhat coarse and feathered. There is complete opacity over the lower left chest. Its exact nature is not known. Its appearance suggests that it may be infiltration in the lower portion of the left lung, possibly a pneumonia. In addition, there is haziness over the lower portion of the left lung, suggestive of a small amount of



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fluid." (March 24, 1945.) "There is haziness over the entire left chest, suggestive of considerable fluid in the pleural cavity. In addition, the opacity over the lower left chest is again seen. It is completely opaque from about the fourth rib anteriorly downward and its shape now suggests that this may be an elevation of the left leaf of the diaphragm." Special barium enema: "Prompt canalization of the colon with marked irritability of the transverse, descending, and sigmoid segments with grossly atypical haustrations and infrequent diverticula."

Course in Hospital.—During the first four days the patient's temperature rose each evening to 38 C. or 38.2. C. Proctoscopic examination on March 11 was noteworthy chiefly because the proctoscope could not be inserted more than 12 cm.; it was not determined whether there was spasm or stricture. A few external and internal hemorrhoids were seen; the mucosa appeared normal. On the night of March 13, the patient had a hard shaking chill with a steep rise of rectal temperature to 39.5 C. At that time he began to cough, produced mucopurulent sputum and complained of a sharp pain in his left chest posteriorly. A few areas of diminished resonance were outlined and crackling moist rales were heard over the lower left chest posteriorly. Penicillin, 20,000 units every 3 hours, was given for twenty-four hours; sulfasuxidine, 2 gm. every 8 hours also was begun and continued through March 24. After the chill, his temperature fell promptly, but during the next ten days the evening rise would occasionally go as high as 39.4 C. On March 19, 300 cc. of cloudy, straw colored fluid were removed from the left chest. The fluid clotted rapidly; specific gravity and cell count were not done but many neutrophils, lymphocytes and plasma cells were seen in the sediment. Protein content of the pleural fluid was 4.5 gm. per cent; *Staphylococcus albus* was cultured from it; no acid-fast organisms were found and a guinea pig injected with a specimen of pleural fluid showed no evidence of tuberculosis. No tumor cells were identified in sections made from the sediment.

Pain in the left shoulder reappeared and, following the paracentesis, the patient developed pain in the left upper quadrant of his abdomen at and just below the rib margin. One observer thought he felt a poorly defined, tender mass in that region which descended with inspiration. On March 21, sulfadiazine, 1 gm. every 4 hours, was substituted for the sulfasuxidine. Three days later, 705 cc. of fluid were removed from the left chest; it was at first serous, then sanguinous, and then frankly purulent. One hundred cc. of air were injected into the pleural cavity. The patient stood the procedure well until the end when he became cyanotic and his pulse was very rapid. Blood pressure began to fall to 90/50 in twenty minutes and the temperature rose abruptly to 41.6 C. He was given morphine, 0.01 gm., 1 cc. of adrenalin subcutaneously, oxygen, and fluids intravenously (glucose 500 cc.: plasma 1,500 cc.). His blood pressure stabilized at about 98/52; 4 gm. of sulfadiazine were given subcutaneously in 1,000 cc. of saline. His temperature fell to 38 C., pulse to 120. There were signs of bronchospasm and numerous rales over both lung fields. Culture of the blood and the pleural fluid revealed Bacteroides funduliformis. Blood sulfadiazine level was 16.2 gm. per cent. The patient remained cyanotic during the next thirty-six hours. His temperature did not rise above 38.5 C., but he became progressively weaker and died at 11 a. m. on March 27.

CLINICAL DISCUSSION

DR. CARL V. MOORE: While this patient was in the hospital no final diagnosis was made. It probably will be equally difficult today for us to make a final diagnosis. The principal point of interest is the nature of the lesion in the abdomen. The disease started rather suddenly on January 22 with cramping pain in the left side of the abdomen, chill, fever, vomiting and a productive cough. Dr. Scheff, what is your opinion?

DR. HAROLD SCHEFF: The most probable lesion in the abdomen at the time was an acute diverticulitis.

DR. MOORE: Diverticula of the colon are common in older people, are they not?

DR. SCHEFF: Yes, from 10 to 15 per cent of all persons over 40 have diverticula of the colon.

DR. MOORE: How common is diverticulitis?

DR. SCHEFF: From 4 to 6 per cent of all people with diverticula develop at some time inflammation of the wall of the sac.

DR. MOORE: What are other complications?

DR. SCHEFF: The most common is a pericolic abscess. It seems probable to me that this patient had such an abscess.

DR. MOORE: Would this be seen on the radiograph?

DR. SCHEFF: Not necessarily, but the appearance of the sigmoid colon which was interpreted as irritation may well be the effect of an abscess.

DR. MOORE: What are other complications?

DR. SCHEFF: Perforation and obstruction.

DR. MOORE: Does carcinoma occur in diverticula?

DR. SCHEFF: It is not common, but it does occur.

DR. MOORE: In reading Bockus last evening I was surprised to find that it is difficult at times to distinguish between diverticulitis and carcinoma. He points out that there is usually fever with diverticulitis and loss of weight with carcinoma. With this patient there were both fever and loss of weight.

DR. SCHEFF: In my experience fever is not uncommon in carcinoma and similarly loss of weight is not uncommon with diverticulitis.

DR. MOORE: What is your opinion, Dr. Sale?

DR. LLEWELLYN SALE, SR.: Certainly diverticulitis and carcinoma are the most probable diagnoses. I favor the former. I was also impressed by the history of pyuria. This may indicate that there is a pericolic abscess with the formation of a fistula into the urethra or bladder. Patients with this con-

dition usually pass air through the urethra, but it is not always noticed. The patient also probably has a subdiaphragmatic abscess on the left in the region of the spleen and the splenic flexure.

DR. MOORE: How common is left subdiaphragmatic abscess?

DR. SALE: It is rare. Most abscesses of this sort are on the right side.

DR. MOORE: I found little in the literature about left subdiaphragmatic abscess. What are the usual causes?

DR. SALE: I have seen very few cases. One I remember was metastatic from an infection of the pharynx. I think rupture of a diverticulum may occur in this region.

DR. SCHEFF: Left subdiaphragmatic abscess is most common as a sequel to perforated gastric ulcer. It is next most common as a postoperative complication in resection of the stomach.

DR. MOORE: You and I must have read different papers. In the one I read rupture of a splenic abscess was given as the most common cause. What is your experience, Dr. Moore?

DR. ROBERT MOORE: I agree with Dr. Scheff that left subdiaphragmatic abscess is most commonly observed after perforation of a viscus of the upper quadrant of the abdomen, either the stomach or colon. We have seen a few following rupture of large infected infarcts of the spleen in subacute bacterial endocarditis.

DR. MOORE: Are there any other suggestions?

DR. SCHEFF: This patient could have had two diverticula which ruptured; one in the sigmoid colon which gave a pericolic abscess and one in the splenic flexure giving the left subdiaphragmatic abscess.

DR. JOHN SMITH: There was an ill-defined mass in the pelvis. I think it less likely, but we should consider the possibility of a mesenteric thrombosis.

DR. MOORE: Dr. Scheff, would you tell us something about the proctoscopic examination? It is stated that the proctoscope could be introduced for a distance of 12 centimeters only.

DR. SCHEFF: That observation is not uncommon, especially when there is some irritation of the colon. There may be an acute angulation or an edema of the wall either of which will prevent further introduction.

DR. MOORE: It is apparent that most of us favor diverticulitis with a possibility of subdiaphragmatic abscess, but there were prominent signs and symptoms pointing to disease within the thorax. If we assume that the patient had a subdiaphragmatic abscess, it is possible that the infection passed through the diaphragm and initiated an empyema. This pathogenesis is not clear to me. What is your opinion, Dr. Goldman?

DR. ALFRED GOLDMAN: The history of a cough with the production of one half cup per day of foul sputum is indicative of a lung abscess. We may logically assume it was secondary to the disease below the diaphragm. It could have been a pneumonia with secondary abscess.

DR. MOORE: What were the time relations?

DR. GOLDMAN: I think he probably had a lung abscess in January and an empyema in March.

DR. MOORE: How did the bacteria reach the thorax?

DR. GOLDMAN: Either through the blood or through the diaphragm. In the latter instance there may or may not have been an actual perforation of the diaphragm.

DR. MOORE: Why is it not equally logical to believe that the infection in the thorax was primary and that it was secondary in the upper part of the abdomen?

DR. GOLDMAN: That is possible, but the transmission of an infection from above downward is much rarer than from below upward.

DR. MOORE: In what diseases does the infection travel downward?

DR. GOLDMAN: We have seen it in actinomycosis.

DR. MOORE: How do you explain the findings on the last thoracentesis? It is reported that clear fluid was first secured, then blood, then pus, without moving the needle.

DR. GOLDMAN: That occasionally happens. We must assume that the needle probably moved. The empyema may be loculated and each pocket contain a different kind of fluid. Another possibility is that particles in the fluid were heavy and there was a clear layer on the top.

DR. MOORE: Is it possible that the needle went through the diaphragm?

DR. GOLDMAN: That may have occurred. Not infrequently in a thoracentesis on a patient with a high diaphragm, the needle goes through it.

DR. MOORE: The last report was that Bacteroides funduliformis was recovered from the fluid in the chest. Dr. Harford, will you tell us about that organism?

DR. CARL HARFORD: It is a small Gram negative, pleomorphic, nonsporulating, strict anaerobe. Similar organisms have been described under a number of different names and reports of a disease similar to that in this patient can be found in the literature.

DR. MOORE: What tissues are usually primarily involved?

DR. HARFORD: Mucous membranes are a frequent sight of the primary disease, especially the pharynx.

DR. MOORE: In the January 11, 1945, number of the *New England Journal of Medicine* there was a report of three cases of peritonitis following appendicitis caused by Bacteroides. In one case the organism was found in the blood.

DR. HARFORD: It is of interest that earlier studies of this organism indicate that it was the most common cause of peritonitis following rupture of the appendix.

DR. MOORE: We seem to be agreed that this patient had diverticula, diverticulitis and a subdiaphragmatic abscess with extension to the pleura.

Is it not possible that the subdiaphragmatic abscess was in reality an abscess of the spleen which ruptured? We assume that it was secondary to the rupture of the diverticulum.

Dr. Harford: Infections caused by bacteroides are frequently associated with thrombophlebitis. This patient may have had a septic infarct of the lung.

Dr. Moore: On March 13 he experienced sharp pain in the chest. Dr. Goldman, what was the cause of that?

Dr. Goldman: I assume that he had a chronic lesion of the lung and that at that time there was an exacerbation.

Dr. Moore: Major Edwards, would you like to join in the discussion?

Major Edwards: I agree with the general summary you have just given. In addition I am impressed with the history of pyuria. Is it not possible that he had more than a transitory lesion of the kidney? This man had hypertension, therefore he could have had chronic pyelonephritis.

Dr. Harford: There is one other possibility that should be mentioned. Bacteria were recovered from the blood stream on two occasions. The course was long and characteristic of an infection and the harsh murmur might indicate an endocarditis.

Dr. Moore: Do you think he had endocarditis?

Dr. Harford: I doubt it.

Dr. Moore: Twenty-four hours before death, during a thoracentesis, this patient showed the symptoms usually interpreted as pleural shock. Dr. Goldman, do you think this man had pleural shock?

Dr. Goldman: No, I do not. I have never been impressed with pleural shock as an entity. I think it is much more likely that what is called "pleural shock" is actually air embolism.

Dr. Moore: Certainly something most dramatic occurred at that time. The blood pressure fell and there was intense cyanosis. Both of these changes persisted for twenty-four hours, then came death. Was this syndrome related to the thoracentesis?

Dr. Goldman: In my opinion only if air was introduced and air embolism followed.

Dr. Moore: How much air must enter a vein to give air embolism?

Dr. Goldman: I do not know, but a few cubic centimeters will not produce the syndrome.

Dr. Moore: I have read that there is a difference between air introduced in a peripheral vein and in a pleural vein. It takes only a few cubic centimeters into the pleural vein to cause death.

Dr. Goldman: I have seen this syndrome many times during the course of pneumothorax. Most of the patients recover promptly.

Dr. Moore: In your opinion, what was the cause of death?

Dr. Goldman: The severe infection.

Dr. Scheff: Dr. Moore, what was the basis for a diagnosis of carcinoma?

Dr. Moore: It was based largely on the loss of weight.

Dr. Scheff: If he had a carcinoma, he should have had blood in the stool. It is rare on repeated examinations not to have a positive reaction on a patient with carcinoma. Why was not surgical exploration of the abdomen considered?

Dr. Moore: It was considered but the surgeon did not feel justified in performing a laparotomy.

CLINICAL DIAGNOSIS

Diverticula of the colon.
Diverticulitis with pericolic abscess.
Subdiaphragmatic abscess, left.
Empyema, left.

ANATOMIC DIAGNOSES*

Diverticula of the colon.
Chronic diverticulitis of the descending and sigmoid colon.
Fibrinous and fibrous peritoneal adhesions of omentum to descending and sigmoid colon.
Focal purulent peritonitis about sigmoid colon.
Fibrinopurulent pleurisy, left (1,100 cc.).
Bronchopneumonia in the lower lobe of the left lung and the upper lobe of the right lung.
Abscess involving the spleen and perisplenic tissues (Bacteroides fragilis isolated postmortem) (2,300 cc.).
Recent thrombus occluding the lumen of the splenic artery.
Recent infarcts in the kidneys.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: The gross observations at the time of the autopsy were quite definite. There were multiple diverticula of the colon and about the descending colon and sigmoid there were three pericolic abscesses in the lower left quadrant of the abdomen. Pushing forward and downward on the splenic flexure there was a large abscess cavity containing 2,300 cc. of pus. The spleen formed a part of the wall of this abscess. On the superior surface of the spleen there were dense adhesions to the diaphragm. In the left pleural cavity there were isolated adhesions, both to the diaphragm and to the thoracic wall. The remaining pleural space was filled with pus. There was bronchopneumonia in the left upper lobe of the right lung. The heart was enlarged, weighing 500 grams. In the aorta there were arteriosclerotic placques, some of which were ulcerated and covered by thrombi. The right renal artery was completely occluded by a thrombus and there was an extensive infarct of the kidney. In addition there were small pyelonephrotic scars in both kidneys.

It seems clear that this person had suffered from diverticula of the colon for some years. In January one or more of them perforated and pericolic abscesses formed. Although we did not find an actual perforation of the diverticula, we did find foreign

*This is not the printer's or the proofreader's error. It is to assist the reader who wants to make up his own mind about the diagnosis but whose curiosity is too consuming.



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**Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60; Proc. Soc. Exp. Biol. and Med., 1934, 32, 241; N. Y. State Journ. Med., Vol. 35, 6-1-35, No. 11, 590-592.*

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body giant cells containing material similar to cellulose fibers. This observation is usually accepted as evidence of previous perforation. Sometime in the last few months the patient developed a large abscess in the region of the spleen. Microscopic examination of the wall of this abscess shows that in at least three parts examined there is splenic capsule over the free wall. This is to be interpreted as evidence that the abscess was in the spleen. Furthermore the diverticula in the region of the splenic flexure of the colon did not show any evidence of perforation. It follows, then, that the left subdiaphragmatic mass was originally an abscess of the spleen. The splenic artery for three centimeters outward from the hilum contained a thrombus, but this may well be an effect of the abscess and not a cause.

Sections of the diaphragm show a productive exudative inflammation in all parts. We thus have an anatomic basis for assuming that the infection spread from below upward.

We did not find any lesion in the lungs which could be interpreted to mean that this patient had an abscess in January. It is quite possible that he had and the abscess was collapsed by the following empyema.

We have identified Bacteroides fragilis in cultures. There are two common species of this genus, Bacteroides funduliformis and Bacteroides fragilis. The former produces hydrogen sulphide in culture and forms gas in sugar media. The latter does not form hydrogen sulphide and forms only acid from the sugars. The organism we isolated from the blood, pleura and splenic abscess behaved like the latter. In addition, we observed small Gram negative rods in the sections of the abscess.

SPECIAL ARTICLE

THE PATIENT DIAGNOSES THE DOCTOR

J. R. VAN PELT, Sc.D.
CHICAGO

In the field of medicine, I am strictly a consumer; and fortunately, a small one. Thanks to persistent good health, I have always viewed the medical profession with calm detachment. But if I should become ill, my attitude would probably change to a lively interest in everything about you, Doctor, and about your profession. I shall then be interested in your personal habits, your manners, your daily schedule, your medical education, your experience, your judgment, and above all, your ability to effect a quick cure—at, of course, a reasonable cost to me. I shall also be alert for any neglect, delay, or supposed error on your part; and since any such fault may affect my welfare or my very existence, I shall expect you to give me your first and, if possible, your undivided attention. As for your other patients, they and their comparatively trifling ailments will no doubt be a matter of the most profound indifference to me.

A LAYMAN'S VIEW

There is reason to believe that this attitude toward your profession is not mine alone. The picture I have drawn may not be that of the model patient you hope to meet; but it is, perhaps, that of a fairly typical patient whom you will meet often. Because he is typical, because there are so many of him, he and his opinions are important to you. Perhaps, therefore, the most useful thing that a layman can do here is to sketch for you his view of the medical profession, and to discuss from the layman's viewpoint a few of the problems that will confront you as medical men in the next few decades.

If anything is certain about this future of yours, it is that you are going to live in an age of scientific research. The tempo of research is stepped up year by year; more money goes into it; more people devote their lives to it. The results of a little painstaking research may be spectacular and valuable in the extreme. One Russian scientist, following a simple biologic law, crossbreeds two kinds of wheat and produces a new strain so resistant to drought that at least six million acres of semiarid land in the United States, Canada and Russia have been added to the world's food-producing area. An English investigator observes that his cultures die in the presence of the mold penicillium notatum, and a few years later, following his suggestion, other workers discover the amazing value of penicillin. Literally thousands of such examples can be found in all of the fields of science, but most of all, perhaps, in medicine, bacteriology and public health.

TREND TOWARD RESEARCH

This trend toward more and more research is important to me, the patient. Having been educated by a dozen books, by my morning paper, and by many radio programs to appreciate scientific research, I am well aware that new things are happening in medicine, and I want to be sure that my doctor will take full advantage of all such progress. I don't want him to use me for a guinea pig if there is the slightest chance that the experiment may be injurious to me, but I do want him to use the latest approved treatments and the most potent cures.

All this must seem obvious, especially to young men in close contact with medical education. Of course you are scientific! Of course you are up to date! This is no special credit to you; it is merely the natural result of associating with a medical faculty whose job it is to teach you the latest and best in medicine. But look ahead twenty or thirty years; will you be up-to-date then? Will you still be eager to learn some improved operational technic or to check the clinical results of the latest drug?

A convocation address presented before the Chicago Medical School, September 23, 1944. This paper was secured through Eben J. Carey, M.D., Milwaukee.

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We all know doctors who have grown more and more out-of-date, whose offices are dusty museums of the medical gadgets of an earlier generation, whose standards of sanitation are those of a second rate barbar shop. The suspicion cannot be escaped that such men's medical knowledge and practice are as antique as their offices; and a few minutes' conversation may quickly confirm one's worst fears.

WHY FOSSILIZE?

Yet these men were once young graduates, as modern as any of their classmates. Why did these men fossilize, while others kept always in the forefront of professional progress? The answer is simple: one man sees medicine as something essentially static; the other as something dynamic, still taking shape. To one, it appears that most of the great medical discoveries have been made; he is the familiar apostle of the status quo, to whom any change is painful. To the other, most of the great medical discoveries seem to lie just around the corner; he eagerly awaits the long expected cure for cancer, or a more effective preventive for that costly thing, the common cold. Being a man of science, he will demand evidence of efficacy before he adopts such innovations; but he will be on his toes every day for these and a thousand other improvements which we do not know today, but which are coming just as surely as tomorrow's daylight. These alert men become the leaders of their profession.

The difference between these men is not one of age. Some minds fossilize at twenty or thirty years; others at eighty are still eagerly seeking knowledge. The difference is mental attitude; and fortunately, one can take definite steps to cultivate a progressive attitude toward his profession. The most obvious of these steps is activity in your county, state and national societies. No profession is better equipped than is medicine to aid its own initiates; but the aid can be had only by working for it. It is not enough to hold memberships in these societies; it is necessary that you attend meetings, present papers and take part in discussions. Dr. Frank Billings once remarked that in more than forty years of practice, he had missed only one Annual Meeting of the American Medical Association and that was when he was engaged in study abroad. Billings might still have been great without such a record, but unquestionably it was a potent factor in adding to his professional knowledge, his fame, and his service to the profession and to humanity.

PATIENT APPRAISES PHYSICIAN

In view of what I said about old-fashioned offices, let me hasten to add that a modern office with chromium and leather chairs is no sure sign of the doctor's up-to-date knowledge. As a patient, I wish there were some easy rating scale, like the amount of chromium in evidence, or the poise of the receptionist, by which to judge a doctor's progressiveness. As it is, I shall have to depend upon his general reputation and my own intuitive appraisal. Since such appraisals are being made constantly, you will do well to build a solid foundation of modernity, through the medical societies and in every other feasible way. Regard the cost of attending medical gatherings as a part of your professional expenses, fully as important as your office rental. As a patient, I should be very distrustful of a doctor who ignored these channels for self-improvement.

In a world of scientific research, it is natural that there should be a trend toward specialization. As a patient, I am glad that this situation exists. It means that my doctor can have the advice of men who are expert and completely up-to-date in a particular field; who, as researchers and practitioners in that special field, have advanced the practice of medicine by skill in diagnosis, treatment or surgery. The value of these specialists is obvious, and the patient is generally prepared to place great confidence in such doctors.

But while this is an age of specialization, the public also demands, and has a right to demand, an ample supply of competent general practitioners. These are the men who are closest to the patient; they handle six out of every seven cases unaided; they are, in fact, the one kind of doctor who is really indispensable. We hear much these days, just before election, about the "indispensable man." Here he is—the general practitioner! No politician, however high his place, no tycoon of business, no priest or lawyer or scientist, comes quite so near being "the indispensable man" as the quiet, keen, and helpful general physician.

"SCIENTIFIC YET WARMLY PERSONAL"

Before 1900, this man was not merely the center of the profession; he dominated nearly all of it. Then as specialization grew, many doctors thought general practice less attractive than a specialty. Not that a specialty took any more brains, or was any more important; on the contrary, the general physician needed, and still needs, broader knowledge, embracing the whole field of medicine so that he is prepared to take intelligent steps regardless of the emergency that may confront him. He must have keen judgment and special ability in diagnosis; and above all, he must have warm personal qualities—genuine interest in people, infinite patience, and sympathy. Whatever else may befall me, may the fates save me from the general practitioner who is just a machine! If I had to choose between a family doctor who is warmhearted, who knows me and my family well, and is a keen judge of men, and yet is slightly antique in his professional knowledge, and one who is completely up-to-date but regards me simply as Case No. 8,472, you may be sure I would pick the former every time.

It is high time that the general physician be restored to his rightful place at the center of the profession. Much has, in fact, been done in that direction in the last few years, especially through the

influence of aviation medicine. Flight surgeons must be very broadly trained to discern every cause contributing to disability, including mental and emotional disturbances. In the last war, the Army had to take general doctors and make specialists of them; in the present war the Air Forces have had to reverse the procedure and train specialists as general flight surgeons. There are other signs that specialization is overextended and that general practice will offer increasingly attractive futures for men now entering the profession. My guess is that if you can measure up to the necessary standards for leadership in general medicine, and if you never forget that your job goes far beyond medical technics and extends into the innermost secrets of your patients' lives, you will reap rich rewards in satisfaction and a place of honor and importance in the profession.

These demand that you be both scientific and warmly personal are not as contradictory as they may seem. In medicine, the most scientific man is the one who applies the best technics in the light of the patients' personal attributes.

ROUTINIZED HOSPITALS, NOT ROUTINIZED DOCTORS

While we are thinking about the personal side of medicine, let us consider, also, the matter of hospitals and clinics. The medical profession has done a great job in recent years through the expansion of hospital and clinical facilities. In this rapid growth, it is only natural that these institutions should be routinized for the sake of efficiency. Unfortunately, the routine did not stop with the offices and laboratories, but in many cases crept into the attitude toward, and handling of, patients. Your profession could make no greater mistake, for its own welfare and that of the public, than to allow this psychology of the production line to enter hospitals and clinics. It seems fair to say that the medical profession would be justified in turning hospitals upside down if necessary, reshuffling or bringing in new personnel, and completely revising admission and other procedures, in order to insure a warm human contact with every patient at all times. If there exists any doubt as to the seriousness of this matter, one need only question a representative group of former hospital patients to discover widespread and well-justified dissatisfaction, which is injurious both to institutional good will and to the patient's recovery.

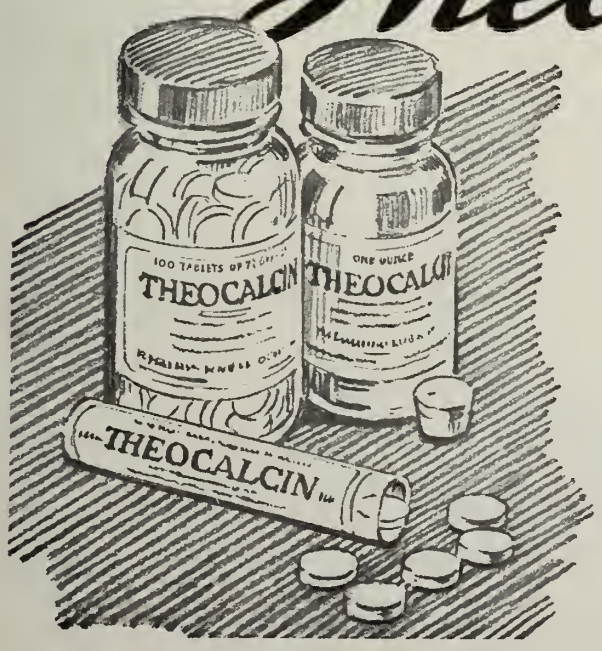
Just this week, a case was reported to me of a patient, a professional man, who was in a hospital being made ready for an important and necessary, but not particularly dangerous, operation. A talkative nurse came in and gossiped in rich detail about a recent case which had ended unexpectedly in the patient's death, with the result that her listener got up and dressed, and was later persuaded only with difficulty to permit the operation which he needed.

In another case, this time of gangrenous infection

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so advanced that it resulted the next day in amputation, the patient was brought to the hospital in such pain that he was unable to answer the questions of the admission clerk—questions such as his place of birth and the dates and causes of death of his parents. Admission was refused until these and many other questions were answered. Knowing nothing of this man's family, his escort finally broke the deadlock by furnishing plausible data based on nothing but his imagination. The falsity of this impromptu history must have been obvious to the admission clerk, but she was satisfied because all the blanks on the admission form were duly filled.

The inhuman callousness of this clerk was bad enough, but a worse condition came to light the next day when a formal complaint was made to the superintendent, who showed no signs of special concern about the matter and did nothing to improve the admission procedure. Fortunately, this man is no longer running a hospital.

In justice to American hospitals, it should be said that such conditions are not universal. Some of the best hospitals have an officer whose duty it is to investigate complaints, to supervise the training of all personnel in proper handling of patients, and to improve all aspects of the institution's service to patients. The medical profession can do much to promote such good service.

SMALL OR LARGE COMMUNITY PRACTICE?

And now a word about opportunities for doctors in rural areas and in small cities. You know, of course, how our population has moved steadily toward the cities—how only one-twentieth of the American people were urban at the time of the Revolutionary War, one quarter in Civil War days, and nearly two thirds today. Naturally most of the hospitals, clinics, laboratories and specialists are in the cities. One might easily conclude that the city is the only good place to carve out a medical career.

From the layman's point of view, however, it seems that smaller communities offer the doctor, interested in general practice, far greater opportunities for a varied and satisfying life. Country or small town practice places the maximum responsibility on the family doctor and gives him the maximum opportunity to know his patients and their real needs. He lives close to the realities of life, but he sees less than the city practitioner of the more sordid side of life which reaches its greatest concentration in the depressing slums of the city.

In the small community, the doctor is father-confessor and general trouble-shooter for people of all ages and creeds. He is likely to be the best educated man in town, and his opinions are sought in a hundred ways, both in and out of the medical field. The small town man, in a typical day, talks with more kinds of people, knows these people better, moves in a wider orbit, has more freedom from routine, and lives closer to his family and to his outdoor recreations than his city brother can hope to do. The city man tends to lose his individuality, to rely more and more on others. What this country needs, and what the individual yearns for as he grows older, is independence, self-reliance, contact with the eternal verities; and these are at their best in the small community.

GROWTH OF NATIONALISM

One of the most obvious trends in recent years has been the growth of nationalism throughout the world. To a certain extent, this tendency is necessary to cope with modern conditions of life. For example, it is clearly necessary for the United States to allocate wave lengths for the radio industry, and in the case of railroads there is general agreement that the Interstate Commerce Commission should regulate freight and passenger tariffs. Very few people, however, favor government ownership of American radio networks or railroads. Those of us who remember how poorly our railroads were managed by the govenment in 1918, as contrasted with the amazing efficiency of their private operation in the present war, have reason to be thankful that government control of railroads has gone no farther than it has. In professional fields, it is generally recognized that the state has an important duty in guaranteeing that men who offer their services as doctors, lawyers, or engineers meet a certain minimum standard of qualifications. This much control is clearly in the public interest.

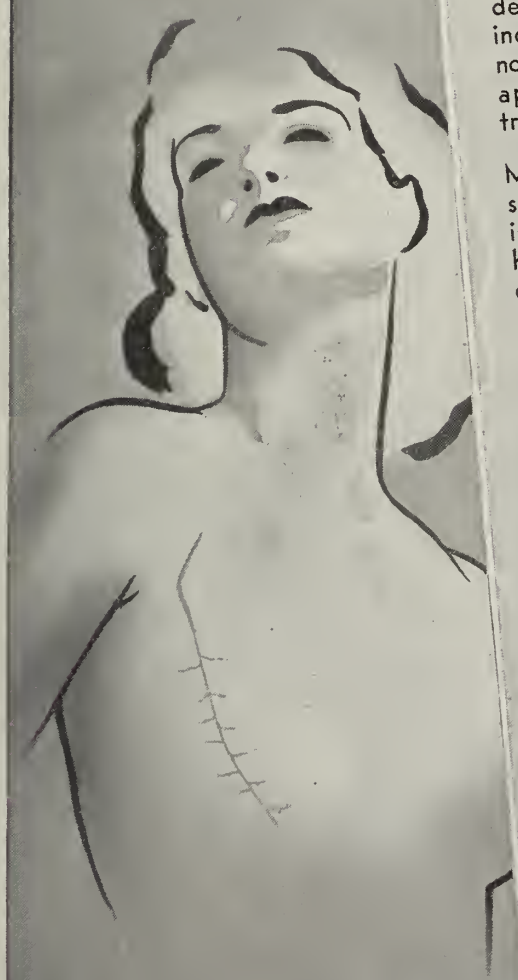
But young men now being graduated from medical colleges are entering the medical profession just in time to witness an attempt to control their profession far more closely. The insidious germ of nationalization has led many sincere people to favor what is known as state medicine—a system whereby the doctor becomes, in effect, a government employee. The advocates of this system believe that, by this means, they will secure for the underprivileged, and even for the average man, a better quantity and quality of medical service than he now has, and at little or no increase in cost. In passing, it is significant that some of the most conspicuous advocates of the system are already in government service.

LAYMAN CONSIDERS STATE CONTROL

Now I, as a prospective consumer of medical services, have a very definite opinion on this subject. There is nothing in my past contacts with government bureaucracies to make me enthusiastic about the idea. The relation of the doctor to his patient and to the patient's family is a highly personal one, and I cannot tolerate the idea of having any governmental red tape interposed between me and my physician. When it comes to calling a doctor, I am, and I propose to remain, the boss. I call the doctor of my choice—different doctors for different purposes, if I wish, or for different members of my family. If I am not satisfied with his handling of the case, or if he is too busy to come when I want him, I am free to call any other doctor. If

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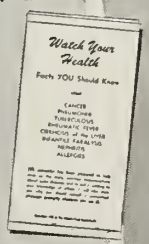
• CANCER killed 163,000 people in the United States during 1942, it is estimated*, and ranks second in causes of deaths. The rate apparently is increasing. About 300,000 new cases are diagnosed for the first time each year and approximately 475,000 persons are under treatment at any given time.

Many cancer patients can be cured by surgery, X-ray or radium if the disease is diagnosed early enough. There is not, however, sufficient information about the cause of cancer and its characteristics to have led to the discovery of a specific and generally applicable cure. Physicians are helping by reporting their experiences and observations. What will be the cure? Who will discover it?

People should be educated to the necessity of having examinations at the first symptoms indicative of cancer so that such curative measures as are available may be utilized as quickly as possible. Too many hide their condition until a cure is impossible.

To aid in such educational work, we have prepared a pamphlet — "Watch Your Health" — in which simple facts about this and six other serious diseases are given. Copies for distribution to your patients are available on request.

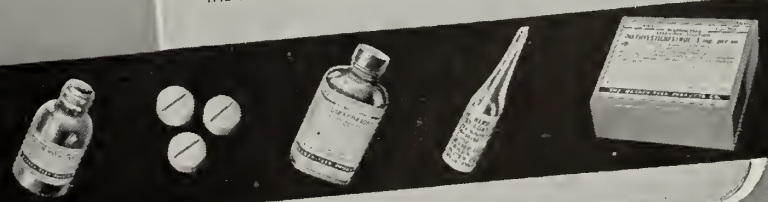
*U. S. Summary of Vital Statistics, 1942



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I am convinced that he has been guilty of malpractice or neglect, I can even sue him. In short, I am the master who retains an expert—not a slave to a great, impersonal machine, out of my reach, and out of touch with my needs.

Experiences of foreign countries, as reported to me, confirm my doubts on state medicine. In New Zealand, for example, a patient seized with illness at night cannot call a physician to his home, but must be taken to the hospital by ambulance. There he is examined, not by his own doctor, but by the resident who usually has no knowledge of the case history. If it turns out that the resident thinks the visit was unnecessary, the patient may be severely penalized.

Experience in the United States with state operation of hospitals is comparatively good in some places, but nearly always it is highly mechanical. Because of constant pressure on his funds, the superintendent's aim tends toward low operating cost per bed, rather than toward maximum recoveries or the best care of patients. Such hospitals become little more than domiciles; medical care degenerates. Commissions, appointed by the governors of such states as New York and Wisconsin, have recently uncovered surprisingly meagre medical care in some state institutions; and even under the best conditions, it seems fair to say that state operation of medical facilities tends strongly toward red tape, callousness, inadequate medical care, and high cost. As a patient, I want none of it.

STATE MEDICINE OR ALTERNATIVE?

State medicine would, however, have one very important advantage to me: all my expenses for health care would be covered by compulsory taxation which I could foresee and budget. This fact impels millions of people to support state medicine.

The alternative is clear: establish private service plans for hospital care, for medical services, for surgery; or, at least for hospital care and surgery, since these are more likely to be catastrophic to the family budget. These service plans operate on small, uniform, monthly payments, which are really prepayments, averaged, like insurance, from a large number of subscribers. They are operated by nonprofit corporations as a public service, and they protect the subscriber against disastrous financial demands which come at the very time when, because of illness, he is least able to pay.

Hospital service plans are now widely accepted. Similar plans for prepaying both surgical and medical bills are less widely used but have been going long enough to show that they are practical. One thing is clear to me. As a prospective patient, I shall support some plan which allows me to budget and prepay my health costs. If your profession makes it possible for me to do this under a private plan, I shall be happy; but if you fail to provide this plan, I shall be driven against my will to get it through state action in one form or another. The choice is yours today; a few years hence, if you of the medical profession fail to act, the choice will no longer exist.

PATIENTS NOT CHILDREN OR IMBECILES

The patient is interested in another thing about you: he wants you to take him into your confidence. Barring the very sick, and the occasional unstable relative who cannot be depended upon, you stand to gain by frankness. Take time to explain the patient's condition to him or his family. Give his ailment a simple English name. Explain why the prescribed treatment is being ordered. This takes only a few minutes, but it pays in every way. You are not dealing with children or imbeciles; you may not even be dealing with ignoramuses. But many of you in the medical profession habitually treat your patients and their families as if they were one or all of these.

Perhaps you are thinking that in the case of patients and their families, "a little knowledge is a dangerous thing." This old adage has no meaning here, where your own great knowledge controls the treatment, governs all decisions. Americans are a literate people. They read and write; they listen to the radio; they see movies. They even visit medical museums by the millions. Popular health education is advancing by leaps and bounds. Not much longer will grown people allow themselves to be treated like infants where their own health is concerned.

Let me summarize this layman's diagnosis of your profession. That profession is a great one. It rests on the best educational foundation of any profession. Its ethical standards are of the highest. To help you find places of greatest usefulness and leadership in that profession, I ask you to bear these points in mind: Be scientific and up-to-date, yet human and friendly. Consider the relative merits of general practice and specialization, bearing in mind that general practice is the hub from which all specialties should start. In selecting a location, do not overlook the satisfaction of living in smaller communities. Support the movement to provide means of budgeting and prepaying all health costs. And finally, respect your patient's intelligence and his ability to understand the facts about his health, and he will respect you.

Lt. Col. Louis E. Lieder, Army Medical Center, Washington, D. C., reports in the current letter from the International Correspondence Club of Allergy, a case of extremely severe bronchospasm accompanied by generalized urticaria and vomiting, and another case of marked local reaction consisting of tremendous brawny induration with redness and swelling of the arm from elbow to shoulder, following the injection of a vaccine containing egg yolk or embryonic chick tissue.

Both individuals gave a history of idiosyncrasy to egg during childhood, and positive intracutaneous reactions to egg albumen.

These case reports clearly indicate the necessity for a careful allergic history and careful skin testing prior to the administration of egg or chicken containing vaccines. Such are typhus, encephalomyelitis, Rocky Mountain spotted fever, influenza, and yellow fever vaccines. C. H. Eyermann, M.D.

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OCTOBER, 1945

EDITORIALS

ANNUAL SESSION

The dates for the 1946 Annual Session have been set as March 24, 25 and 26. The session will be held at the Jefferson Hotel, St. Louis. With the raising of the ban on conventions, plans for the session are going ahead with work on the scientific program now in progress.

CHANGES IN URBAN AND RURAL LOCATION OF PHYSICIANS

A study of the location and movement and changes in urban and rural totals for established physicians from 1923 to 1938 has been made by the United States Public Health Service. Data was obtained principally from moves involving the crossing of state boundaries and the American Medical Association Directory for those years. During this period more than one fourth of the physicians changed their place of practice one or more times, such changes accounting for 87,000 moves.

In view of the problem that faces many states today, the dirth of physicians in rural areas, the conclusions of the study are presented.

"The combined effect of physician migration, recruitment and losses from the profession, over the period 1923-38, resulted in gains for both large and small cities and in losses for rural communities. Moreover, comparison of physician totals with population data indicates that the tendency for physicians to concentrate in large urban areas somewhat parallels, but exceeds in magnitude, the trend for the population as a whole.

"Failure of rural localities to attract and retain a proportionate share of new registrants has resulted in a distribution heavily weighted with old physicians. Although in 1923 the median age of rural physicians was 4 years above that for those in large cities, by 1938 this difference had extended to 10 years. Such concentration of older practitioners in rural communities implies not only a reduced service capacity for the average physician in those areas due to advanced age, but also an accelerated rate of loss through retirement and death.

"How shall the deficit in the number of rural doctors be met? As physicians on completion of medical training tend to return to their communities of origin, encouragement of young men from these localities to attend medical schools might assist in the solution of the problem. Another and more immediate postwar solution might be to make rural practice more attractive through the construction and improvement of hospitals and related facilities. Because of the adverse economic position of these areas, some means for supplementing the income a physician customarily received from patients very likely will be necessary in addition to other measures that may be instituted."

These recommendations have the whole hearted approval of the Missouri State Medical Association. The Association has supported House Bill No. 291, introduced by Mr. Whinrey, of Lawrence County, which has passed the House and is now being considered by the Senate Committee on Education. This bill provides for scholarships for medical students from each of the state's thirty-four senatorial districts. There is another provision in the bill denoting that the student, on graduation, must agree to practice within his district for a period of five years.

The Council of he Association also has taken action on this problem. Dr. Wallis Smith, Springfield, is chairman of a committee which has as its purpose assisting boys, especially from rural areas, to secure a medical education. It is hoped that communities may be persuaded that it would be beneficial to assist worthy students who would agree to practice in their home towns after graduation.

It is possible now for several counties to merge their funds to erect and maintain community hospitals in the event that costs would be too heavy for one county to bear. Many of the larger counties are considering the erection of hospitals. The Missouri Farm Bureau Federation has been supporting actively the plans to improve hospital facilities in rural areas. The organization has been assisting the Blue Cross plans in their efforts to secure greater enrollments among farm families of the state.

NEWS NOTES

In a schedule of special lectures to be presented by St. Louis Medical Society on the third Tuesday of each month, A. J. Lanza, M.D., Associate Medical Director of the Metropolitan Life Insurance Company, will speak on October 16, on the subject "Recent Advances in the Field of Pneumoconiosis." The address will be presented at the St. Louis Medical Society Building at 8:30 p. m.

The following program will be presented at the meeting of the St. Louis Surgical Society at the Missouri Pacific Hospital, St. Louis, on October 17 at 8:30 p. m.: "Phemister Onlay Bone Graft," C. C. Drace, Jr., M.D.; "Neurocytoma of Distal Ileum," R. A. Weir, M.D.; "Inlay Bone Graft for Nonunion of Fractured Radius," J. A. Lembeck, M.D.; "Ure-

teral Intestinal Anastomosis with Cystectomy," A. E. Vitt, M.D.; "Treatment of Burns by Skin Grafting," Frank McDowell, M.D.

Drs. R. A. Ritter and O. L. Seabaugh, Cape Girardeau, have been appointed to the board of health of Cape Girardeau County.

Col. John W. Stewart, St. Louis, has been awarded the Legion of Merit for achievement in organizing and directing surgical service during the Italian campaign.

Lt. Col. Kenneth V. Larsen, St. Louis, has been awarded the Bronze Star for meritorious service in the Italian campaign.

Lt. Col. Stanley L. Harrison, Clayton, was promoted to Colonel in July.

The Chinese government has requested UNRRA to provide, as soon as possible, some 200 field personnel, to strengthen the available Chinese personnel, such personnel to be required to head the respective services in hospitals of from 100 to 250 beds in areas recently liberated from the Japanese, as follows: general surgeons, orthopedic surgeons, genito-urinary surgeons, gynecologists and obstetricians, general physicians, dermatologists and syphilologists, ophthalmologists, otolaryngologists, radiologists, dentists, pediatricians, laboratory technicians, roentgen ray technicians, sanitary engineers, public health nurses and clinical nurses. Persons interested should write Szeming Sze, Chief, Far East Section, Health Division, UNRRA, 1344 Connecticut Avenue, N. W., Washington 25, D. C.

Capt. Edward N. Zinschlag, St. Louis, has been decorated with the Silver Star for gallantry in action at the siege of Bastogne. He volunteered to fly to the American strong point by glider and performed a number of operations in the forty-eight hours before tanks arrived for rescue.

According to news dispatches, Col. W. J. Shaw, Fayette, assisted in caring for Tojo after his attempted suicide recently in Tokyo.

DEATHS

Elmore, Ethelbert L., M.D., Puxico, a graduate of Barnes Medical College, 1905; honor member of the Stoddard County Medical Society; aged 72; died April 24.

Fulton, Chester E., M.D., Springfield, a graduate of the State University of Iowa College of Medicine, Iowa City, 1888; honor member of the Greene County Medical Society; retired; aged 84; died May 23.

Pressnell, George W. H., M.D., Sikeston, a graduate of Barnes Medical College, 1897; member and former president of the Scott County Medical Society; Fellow of the American Medical Association; aged 72; died May 26.

Moody, Ellsworth E., M.D., Joplin, a graduate of Washington University School of Medicine, 1914; mem-



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ber of the Jasper County Medical Society; Fellow of the American Medical Association; aged 53; died June 9.

Martin, John Neal, M.D., Unionville, a graduate of the Chicago College of Medicine and Surgery, 1916; member of the North Central Counties Medical Society; Fellow of the American Medical Association; aged 53; died June 10.

Moore, Watson Alexander, M.D., a graduate of the Medico-Chirugical College of Kansas City, 1904; honor member of the Cass County Medical Society; aged 67.

Bartling, Henry E., M.D., Pacific, a graduate of Beaumont Hospital Medical College, 1894; member of the Franklin County Medical Society; aged 73; died June 16.

Benage, John L., M.D., Lebanon, a graduate of St. Louis College of Physicians and Surgeons, 1901; member and former president of the Laclede County Medical Society; aged 71; died June 27.

Heuermann, Henry W., M.D., St. Louis, a graduate of St. Louis University School of Medicine, 1904; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 64; died June 29.

Cutler, Robert R., M.D., Washington, a graduate of the St. Louis College of Physicians and Surgeons, 1915; member and former president of Franklin County Medical Society; aged 57; died July 5.

Gum, Posey D., M.D., West Plains, a graduate of the Louisville Medical College, 1894; honor member and former president and secretary of the Howell-Oregon-Texas County Medical Society; Fellow of the American Medical Association; aged 73; died July 6.

Wilson, Robert E., M.D., St. Louis, a graduate of Washington University School of Medicine, 1896; member of the St. Louis Medical Society; aged 75; died July 14.

Brashear, Howard Conley, M.D., Mexico, a graduate of St. Louis University School of Medicine, 1917; member of the Audrain County Medical Society; Fellow of the American Medical Association; aged 54; died July 27.

Talbot, Charles A., M.D., Waynesville, a graduate of Northwestern University Medical School, 1904; member and former president of the Pulaski County Medical Society; aged 65; died July 31.

Widner, Alexander W., M.D., Newtown, a graduate of the College of Physicians and Surgeons, Keokuk, 1891; member and former president of the Sullivan County Medical Society; Fellow of the American Medical Association; aged 76; died August 21.

Baumgarten, Walter, M.D., St. Louis, a graduate of Washington University School of Medicine, 1896; member of the St. Louis Medical Society; former Secretary-Editor of the Missouri State Medical Association; Fellow of the American Medical Association; aged 72; died August 23.

Hickok, Harrison S., M.D., Kansas City, a graduate of the University of Nebraska College of Medicine, 1895; honor member of the Jackson County Medical Society; Affiliate Fellow of the American Medical Association; aged 76; died August 24.

Brady, Jules M., M.D., St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1898; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 69; died September 6.

Smith, Carroll, M.D., St. Louis, a graduate of Rush Medical College, 1904; member of the St. Louis Medical Society; Fellow of the American Medical Association; aged 67; died September 6.

LEGISLATION

WAGNER-MURRAY-DINGELL BILLS

The two Senators and the thirteen members of the House of Representatives from Missouri were asked to express opinions of the Wagner-Murray-Dingell bills for publication in THE JOURNAL. The letter written to the Congressmen and their replies follow:

"House Resolution 3293 introduced by Mr. Dingell of Michigan, and Senate Bill No. 1050 introduced by Senators Wagner of New York and Murray of Montana, as you know, provides for, among other things, what we believe to be state medicine.

"In the next few issues of our monthly JOURNAL we expect to devote considerable space to the opinions and thoughts of many persons on this controversial issue. We should like very much, if posible, to have an expresion from you regarding your opinion of this bill, in particular, the portion relating to the extension of the Social Security Act to cover medical care and hospitalization. We would like to carry this in the October issue of THE JOURNAL, which means we would need to have the material by September 10.

"The Tennessee Medical Association recently published letters from all Senators and Representatives from Tennessee on this subject. Considerable interest was aroused and we are hopeful that you and the other Senators and Representatives will also be interested.

"With best wishes,

"Sincerely yours,

(Signed) "T. R. O'BRIEN, Executive Secretary."

Senators

"My dear Mr. O'Brien:

"I feel rather embarrassed to write you in reply to your letter of August 6 to inform you that I do not have sufficient information on Senate Bill 1050 to make an enlightened statement.

"I will be most happy, however, to have your JOURNAL and to see the statements made by the different people interested in the bill. I shall be glad to study this matter from every angle and will attempt, of course, to be of service to you and all other Missourians interested.

"Respectfully yours,

(Signed) "FRANK P. BRIGGS, U. S. S."

Forrest C. Donnell. No reply.

The Representatives
First District

"Dear Mr. O'Brien:

"You have asked for my opinion on the medical and hospitalization provisions of the Dingell Bill, H. R. 3293, and the Wagner-Murray Bill, S. 1050. These bills are identical and are popularly referred to as the Wagner-Murray-Dingell bills.

"I know that there is considerable complaint about the lack of adequate availability of practitioners of the healing art in many sections of the country, and also with regard to the cost of medical care, particularly in the cities. Undoubtedly there is some justification for both complaints. I know that the shoe is on the other foot when it comes to the fees of practitioners in rural areas, because to my own knowledge many rural practitioners are barely able to eke out a living because of the charity practice that is necessary. Of course, there is considerable charity practice in the cities also.

"The declared objective of the Wagner-Murray-Dingell bills is to make the full benefits of medical science available to everyone. No one can quarrel with that objective. But the pattern of these bills in their present form, in my opinion, creates more problems than it solves.

"Under our form of government the regulation of the practice of the healing art is a part of the police power that is reserved to the States. The effect of these bills is to transfer the right and responsibility of that regulation to the Federal government. A federal bureau head would decide what hospitals and what practitioners of the healing art throughout the country are qualified to furnish services for the people. In other words, what has always been considered to be a very confidential and precious relationship—that of physician and patient—would become the political football of Washington bureaucracy. Medical research and



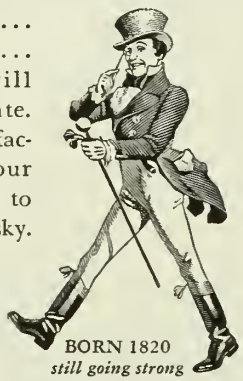
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medical schools would inevitably be required to follow Federal political dictation.

"In order to obtain my support, these bills will have to undergo radical changes. I am very much interested in fostering the health welfare of our people, but I shall insist to the utmost of my ability that any Federal legislation for that purpose shall leave the physician-patient position inviolate and recognize as the exclusive prerogative of the States the licensing and regulation of practitioners and hospitals.

"Very truly yours,
(Signed) "Wat Arnold, M. C."

Second District

Max Schwabe. No reply.

Third District

"Dear Mr. O'Brien:

"I have received your letter of recent date regarding H. R. 3293 and S. 1050 known as the Wagner-Murray-Dingell legislation.

"As you know this bill is designed to cover Social Security from the cradle to the grave and some parts of it may have some merit. However, I am unalterably opposed to that portion of it which would socialize medicine, and I declared myself against it in a communication to the Buchanan County Medical Association a year or two ago. I do not want any state control of the medical profession as I feel it would stultify its progress and cause a rapid deterioration in the caliber of the men who made it their life work. I understand state medicine was tried in some of the European countries and England with very sorry results.

"As stated above, I am unalterably opposed to this type of legislation.

"Sincerely yours,
(Signed) "William C. Cole, M. C."

Fourth District

"Dear Mr. O'Brien:

"In reply to your recent letter regarding H. R. 3293 and S. 1050, filed by Congressman Dingell and Senator Murray respectively, I wish to advise that I shall never favor legislation which would socialize the practice of medicine.

"Sincerely yours,
(Signed) "C. Jasper Bell."

Fifth District

"My dear Mr. O'Brien:

"Your letter of the 6th ultimo was received while I was on my vacation, but upon my return I found it together with my secretary's answer of the 8th.

"I have stated not only to your society in response to a similar inquiry, but on numerous occasions that I am unalterably opposed to state or socialized medicine in any form. Consequently, I am opposed to the so-called Murray-Dingell proposals.

"It is my thought that the medical profession has done an excellent job throughout the years, based solely on the relationship that exists between the doctor and a private patient, but I am glad to see that the American Medical Association has encouraged the formation of voluntary hospitalization and prepaid medical plans. In my judgment, that is the proper and traditionally American approach to this problem.

"Sincerely yours,
(Signed) "Roger C. Slaughter."

Sixth District

"Dear Mr. O'Brien:

"I have your inquiry of August 6th asking my views on the provisions of the Wagner-Dingell bills which, among other things, provide for socialized medicine. My view of such proposals for political medicine can be briefly expressed. I am against them.

"Sincerely,
(Signed) "Marion T. Bennett, M. C."

Seventh District

Dewey Short. No reply.

Eighth District

A. S. J. Carnahan. No reply.

Ninth District

"Dear Mr. Secretary:

"Your letter addressed to Washington was forwarded to Missouri and has just reached me in this morning's mail. Hence this slight delay in acknowledgment.

"Am advised no action has been taken on the Dingell bill or the Wagner-Murray bill up to this time. Impression seems to be that it is too late for action to be taken this session.

"In this connection am enclosing copy of a letter* which is typical of a number I have received in the last few weeks. Would be glad to have any comment you care to make in the premises.

"Command me whenever I can cooperate.

"With kindest regards and best wishes,

"Your friend,

(Signed) "CLARENCE CANNON."

* Enclosure and reply appear following letters from Congressmen.

Tenth District

"Dear Mr. O'Brien:

"I received your letter of August 6 calling my attention to H. R. 3293 and asking my views on this proposed legislation. I have not had an opportunity to date to give this bill careful study, but assure that I will do so before it comes up in the House.

"Our medical profession has made more progress than any other profession, and I want to see it continue without any governmental limitations or restrictions. In my opinion it would be unfortunate and a serious blow to the future of the medical profession to have it placed under the control or supervision of the federal government in any way. Our doctors must be in a position to exercise all the initiative and freedom necessary for the successful carrying on of their profession.

"If the above bill means state medicine, then I shall be opposed to all provisions which would bring that result about.

"Yours sincerely,

(Signed) "ORVILLE ZIMMERMAN."

Eleventh District

"Dear Mr. O'Brien:

"Your letter of August 6, with reference to H. R. 3293 and Senate Bill No. 1050, is acknowledged.

"I have talked to Representative Dingell on the matter of whether or not his bill sets up socialized medicine and he advises that it does not. However, I intend to give it a great deal of personal study before it comes up for discussion and vote.

"I appreciate the opportunity extended to express myself in the October issue of your journal, but I doubt that I will be in a position to have any such expression prepared by September 10. However, I shall keep it in mind and will be glad to have any analysis which you might have.

"As you know, I have a brother, formerly a practicing physician of Saint Louis, Doctor William J. Sullivan, now a Lieutenant Colonel in the Medical Corps at present stationed on Okinawa.

"Sincerely,

(Signed) "JOHN B. SULLIVAN, M. C."

TWELFTH DISTRICT

Walter C. Ploesser. No reply.

Thirteenth District

"Dear Mr. O'Brien:

"Receipt is acknowledged of your letter.

"I am enclosing a copy of H. R. 3293 and S. 1050 as well as a copy of Senator Wagner's remarks which explain the legislation. The bills are before the Com-

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mittees of the House and Senate. They are very broad measures and, as you will see, contain ninety pages. It is my understanding that the bills are practically identical to the measure that was submitted last Session. I am not a Member of the Committee that considers this legislation but I have heard from others who are Members that no action has been scheduled so far this Session.

"Of course, this legislation will not come before me unless it is reported by the Committee. If the legislation is advanced to the point of consideration it is quite likely that many changes might be made in the present bill before it is voted on, and I would hesitate to express myself on the measure unless it is actually advanced and I can see the form in which the legislation will be voted upon.

"With kind regards,

"Sincerely yours,

(Signed) "John J. Cochran."

Enclosure from Congressman Cannon and Reply

Following is the letter received by Congressman Cannon and enclosed with his letter:

"Dear Sir:

"You will please find enclosed # for copies of their subs and I am asking you to please fix some way for rural or country people to get a doctor to come to see us when called. They will not come to see us country folks, white or colored. Just a word from you officers would help over radio.

"Thanks in advance."

The following letter was sent to Congressman Cannon:

"Thank you for your letter of August 10 regarding the Dingell bill. We were also interested in the enclosure which you sent.

"In this connection, more than 1,400 physicians from the State of Missouri have entered the armed forces of the United States and are serving their country. This represents almost one third of the physicians who were practicing in Missouri prior to the beginning of the war. No young doctors have started in practice since the war began, hence it has been impossible to replace any of those who are left. It is extremely difficult at this time to say when these doctors, most of them younger men who are more active, will be back home. We are advised that it is the intention of the Army and Navy not to release doctors until the sick and injured soldiers have been properly cared for. You probably are aware of some of the resolutions which have been made in Washington by various members of Congress on this subject.

"We believe that this is the answer, at least to a great extent, as to why the overworked doctors who remain at home are physically unable to make the home calls that they formerly made and are trying to conserve their time and energy by limiting their practice to office and hospital work."

SENATE BILL NO. 1318

Senate Bill No. 1318 was introduced in the United States Senate on July 26, 1945, by Senator Pepper, Florida; Senator Walsh, Massachusetts; Senator Chavez, New Mexico; Senator Tunnell, Delaware; Senator Guffey, Pennsylvania, Democrats; Senator Aiken, Vermont; Senator Morse, Oregon, Republicans. This bill is described in Senator Pepper's opening remarks on presentation as follows: to provide for the general welfare by enabling the several states to make more adequate provision for the health and welfare of mothers and children and for services to crippled children and for other purposes.

This proposal has been styled "Super EMIC" in that the "so-called" Emergency Maternal and Infant Care program would be expanded so that every mother and



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every child under 21, regardless of financial circumstances, would be eligible for "*free*" medical, hospital, nursing and dental care. The bill provides for a ten year program of Federal grants to states on a matching fund basis, the states to match the Federal grants, dollar for dollar. An appropriation of one hundred million dollars is authorized for the first year, fifty million to be used for the maternal and child health care program, thereafter appropriations as needed. It will be remembered that the original EMIC appropriation called for $1,200,000. Each year thereafter the appropriation was raised considerably, the appropriation for the fiscal year 1946 being $42,800,000. Obviously the one hundred million dollars called for in this bill is entirely inadequate.

The September issue of *Medical Economics* states that the fifty million to be set aside for maternal and child health care would not be nearly enough for the maternity care program alone. The article states: "That can be demonstrated by simple arithmetic. Disregarding, for the moment, the tremendous cost of providing medical, dental and hospital services for all persons under 21, assume that all available funds ($50 million from the Federal government, $5 million from states) were devoted to maternity care. Disregard the war-swollen birth rate and use the statistics of a normal year, 1939, when approximately 2¼ million babies were born in the United States. Now, if 75 per cent of mothers were to take advantage of the program (demonstrably a conservative estimate) the allowance per birth would be about $33—including physician's feet, hospitalization, specialist service if required, technical service, administration, etc., which would leave nothing for the medical care of 40 odd million American children under 21."

The purpose as outlined in the bill follows:

1. Maternity care, including medical, nursing, dental, hospital and related services.
2. Preventive maternal and child health work, including mental health.
3. School health services.
4. Diagnostic services and care of sick children, including medical, nursing, hospital and related services.
5. Dental care of children.
6. Correction of defects and conditions likely to interfere with normal growth and development and the educational progress of children.
7. Demonstration projects in the field of maternal and child health.
8. Training of professional and technical personnel.

BOOK REVIEW

PHYSICAL DIAGNOSIS. By Ralph H. Major, M.D., Professor of Medicine in the University of Kansas. Third Edition, Revised with 457 Illustrations. Philadelphia: W. B. Saunders Company. 1945. Price $5.00.

A third edition of Major's "Physical Diagnosis" since 1937 is evidence of its popularity and, indeed, it is a very excellent presentation of the subject.

There is an interesting historic introduction with due credit given to those great physicians of the past who have added new methods and explanations to the obscurities of diagnosis. There are many illustrations throughout the book and some interesting diagrams of auscultatory sounds, including a musical notation of the normal heart sound which might challenge the ingenuity of some composer.

The book is easily read and, while its greatest value will be to medical students just beginning their clinical medicine, the graduate physician will find it a good reference.

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SEARLE

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ESSAY CONTEST

The following letter was sent to superintendents of all high schools in the State of Missouri together with rules for the Eassy Contest:

"Dear Sir:

"The Woman's Auxiliary to the Missouri State Medical Association has conducted an annual Health Essay Contest for the last thirteen years. This contest is open to any high school student in Missouri:

"This year, the subject of the contest is: 'MEDICINE'S CONTRIBUTION IN WINNING THE WAR.'

"Any student writing an essay on this topic should benefit greatly from the knowledge to be gained.

"We will greatly appreciate any publicity given this contest. Most schools have made use of this essay in their English and science classes. May we suggest that it be a required classroom exercise? Last year 265 essays were submitted.

"On the opposite page is a copy of the rules. It contains the necessary information as to length of the essays, time limits, the judges, basis for judging, and the prizes. We suggest that this copy of the rules be posted where the students can see it and refer to it when necessary.

"Essays should be sent to Mrs. R. C. Porter, Dundee Hills 16, North Kansas City, Missouri, by February 1, 1946.

"Sincerely yours,
"Woman's Auxiliary to the Missouri State Medical Association,
"MRS. HARRY M. GILKEY, President
"MRS. R. C. PORTER, Chairman
"Health Essay Contest.

"P. S. In addition to the awards made by the Woman's Auxiliary, several county auxiliaries award local prizes. In such cases, essays will be returned to the respective county auxiliaries for judging for local prizes."

Rules for the Contest—1945-1946

Subject: "MEDICINE'S CONTRIBUTION IN WINNING THE WAR."

Participants: Any student in any public, parochial or private high school in Missouri.

Length of Essay: Not to exceed 1,200 words.

Prizes: A first award of $100.00 (Purchase Price) in United States Savings Bonds; a second award of $50.00 (Purchase Price) in United States Savings Bonds; three additional awards of $25.00 (Purchase Price) each in United States Savings Bonds, and ten essays will receive honorable mention. An appropriate pin or medal will be awarded all prize winners.

Time: Essays, to be eligible for consideration, must be mailed and post-marked not later than midnight, February 1, 1946, and, regardless of post-mark, must be received not later than February 10, 1946. Entries should be addressed and mailed to Mrs. R. C. Porter, Dundee Hills, North Kansas City 16, Missouri.

No manuscripts will be returned. All manuscripts must be written on one side of the paper, preferably by typewriter. Each manuscript must have attached on separate slip of paper, the entrant's signature, home address and the name of high school. However, during the judging, entries will be identified by number only. Neither the preliminary nor the final judges will know the name of the author of an essay.

Bibliography should be included with each essay.

Judging: Preliminary judging shall be done by the following:

(a) Executive Secretary of the Missouri State Medical Association.

(b) Members of the Woman's Auxiliary to the Missouri State Medical Association.

These preliminary judges will select those entries which merit consideration by the Board of Judges. Members of the Board of Judges are:

(a) Roy Scantlin, State Superintendent of Schools, Jefferson City;

(b) Philip J. Hickey, Superintendent of Instruction, St. Louis Public Schools;

(c) Roi S. Wood, Superintendent of Schools, Joplin;

(d) Emmett T. Miller, Superintendent of Schools, Hannibal;

(e) G. R. Loughead, Superintendent of Schools, Poplar Bluff;

(f) Dr. L. O. Litle, Superintendent of Schools, North Kansas City;

(g) Mrs. Harry M. Gilkey, President, Woman's Auxiliary, M.S.M.A.;

(h) Dr. Herbert L. Mantz, Adviser to the Woman's Auxiliary.

Basis for Judging Essays: Originality, composition, evidence of study. (Direct quotations must be indicated.)

Announcement of Winners: Winners will be announced on May 15, 1946, or as soon thereafter as possible.

For Further Information: Students may write to Mrs. R. C. Porter, Dundee Hills, North Kansas City 16, Mo., Chairman of the Essay Contest, or to the Executive Offices, Missouri State Medical Association, 623 Missouri Building, St. Louis 3, Mo.

COURTESY

"Time travels in divers paces with divers persons." *As You Like It*—Shakespeare.

How nice it would be if we could know each other's triumphs and sorrows and in knowing them, be able to share them.

I hope that each county Courtesy Chairman or county president will send information to me concerning births, deaths, marriages, commendations and such within their own county. Without this cooperation, this committee will be unable to function. I am counting on each of you to keep me informed.

MRS. W. F. OEHLER, Chairman.

PRESIDENT'S MESSAGE

The annual fall Executive Board meeting of the Woman's Auxiliary was held in Jefferson City at the Missouri Hotel on Thursday, September 20, to discuss plans and policies for the new year. The new feature was the School of Instruction for county officers and chairmen. It was a great inspiration to all who attended and I am sure each one went home with a better understanding of how we, as members of the Woman's Auxiliary, can render the greatest service to the medical profession and to the public at large. The reports of all chairmen will be printed in a later issue.

All activities were built around our slogan for the year: "Promote the advancement of Health Education through Service. The key words—Organization, *Hygeia* and National Bulletin."

We have set a goal of 1,000 members. This should be easy to reach. Last year we had 895 members. Every county officer and chairman should make it her responsibility to bring in two new members. Now that rationing is becoming a thing of the past, our Auxiliary should make great progress.

We were all proud to learn that Missouri took third place in the national *Hygeia* contest of 1944, Perry, Cass and Buchanan counties each winning money prizes. We must all work hard to achieve a better record for the New Year.

Do you subscribe for the *National Bulletin?* It is a real textbook for officers, chairmen and members.

As an Auxiliary to the Missouri State Medical Association, the Woman's Auxiliary shall be guided in all its activities by its Advisory Council appointed by Dr. A. S. Bristow. We are proud to have them give their valuable time to assist us in our organization. We do appreciate their consideration, kindness and courtesies. The Advisory Council is composed of Drs. Herbert L. Mantz, Kansas City; H. E. Petersen, St. Joseph; H. B. Goodrich, Hannibal; Robert C. Haynes, Marshall; E. C. Bohrer, West Plains; Paul Baldwin, Kennett; F. T. H'Doubler, Springfield.

In closing I want to quote from our national president: "These achievements are the result of cooperation. Now what do we mean by cooperation, and why is it essential? Cooperation may be defined as working together for a common cause. But something else is needed—'with mutual confidence and respect.' It means in principal the council table, an open mind, the right to express one's opinion, and the willingness to consider the experiences of others. All this we have had in the county and state auxiliaries, the conference and our board meetings.

"And so let us all, as we begin this year's work, look back and be thankful; let us look forward and be hopeful; let us reach out and be helpful to the medical profession."

Mrs. Harry M. Gilkey, President.

BOOK REVIEWS

Yellow Magic. The Story of Penicillin. By J. D. Ratcliff. New York: Random House. 1945. Price $2.00.

Most doctors presumably know something of the part played by Fleming and Florey in the development of penicillin. For those who desire a more extensive account, this little book tells that story in considerable detail and in an interesting and popular style.

Mr. Ratcliff tells a dramatic story as he traces the development of the wonder drug from Dr. Fleming's agar plate to its large scale manufacture and use in present day medicine. This reviewer detected no errors of fact or emphasis. The physician and intelligent lay reader will both find the book worth reading. B. S. P.

The Abortion Problem. Proceedings of the Conference Held Under the Auspices of the National Committee on Maternal Health, Inc., at the New York Academy of Medicine, June 19th and 20th, 1942. Howard C. Taylor, Jr., M.D. Conference Chairman. Baltimore: Williams & Wilkins Company. 1944.

Forty-six distinguished professional people attended a conference at the New York Academy of Medicine for two days in June 1942. The invitations were issued by the National Committee on Maternal Health Incorporated and no publicity was planned. There follows a definite delay in reporting this conference due to the war until October 1944.

The volume presents the complete conference and discussions with the exception of three papers. The magnitude of the problem: the prevention of spontaneous abortion; social, moral, and economic causes and control of abortion are the session topics.

Among some of the points agreed on: The physiology of pregnancy should be a part of any high school course in biology; the dangers of abortion should be taught in premarital clinics; it is important to maintain and strengthen the concept that human life is sacred even many months before birth; at the time the student is taught means of controlling his fertility, an attempt should be made to instill some sense of his reproductive responsibility to society. There is one complete paper by Levine worth the price of the book and that many other thought provoking passages of value. A. B. S.

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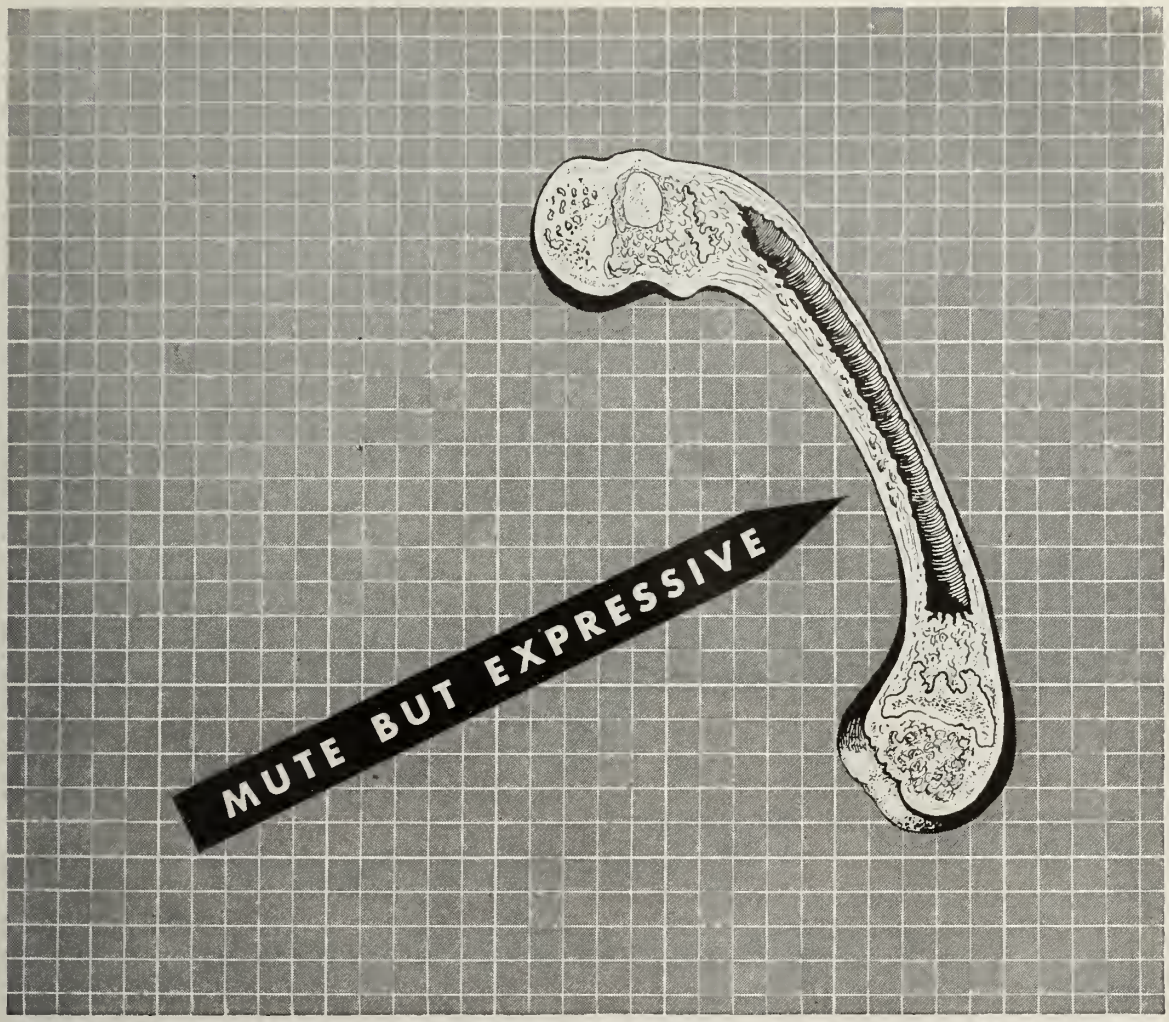


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The long bones of almost fifty per cent of a group of children studied at Johns Hopkins Hospital[1] give mute but expressive testimony to the danger of rickets in children beyond infancy. "It is logical to infer from such observations that vitamin D therapy should be continued as long as growth persists."[2] Upjohn makes available convenient, palatable, high potency vitamin preparations derived from natural sources to meet the varied clinical requirements of earliest infancy through late childhood.

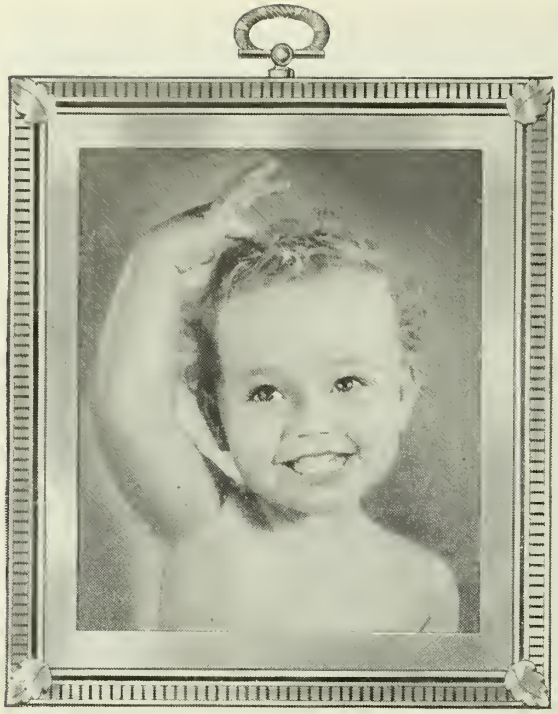
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1. Am. J. Dis. Child. *66*:1 (July) 1943.
2. Nebraska State Med. J. *29*:15 (Jan.) 1940.

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COMMERCIAL ANNOUNCEMENTS

J. E. HANGER INC. CELEBRATES 85TH ANNIVERSARY

J. E. Hanger Inc., manufacturers of artificial limbs, is this week participating in a nation-wide celebration of the 85th year of its founding, and service to the armless and legless public. The company is the largest manufacturer of artificial limbs in the world, with offices in some twenty-five cities in the United States.

The business was established by J. E. Hanger who began to build the first Hanger limb on August 5, 1861. The youngest of five brothers, all of whom served in the Army of NorthernVirginia, at the outbreak of the Civil War, Mr. Hanger was an engineering student at Washington University (now Washington and Lee) at Lexington, Virginia. Mr. Hanger left school and enlisted in Stonewall Jackson's Brigade. He was severely wounded in the first land battle in that war and is believed to have been the first man on either side to suffer an amputation. He made the first articulated artificial leg he had ever seen and began a business which carried on at Richmond until 1888 when he went to Washington as a more central point and better suited to the growth of the business. Units of the Hanger organization are now located in all of the states as well as Canada, England and France. In 1915 factories were established in London and Paris with branches throughout England and France. Several years later when Mr. Hanger visited these factories he was commended personally by the late King George and Queen Mary for his work in rehabilitating British war amputees. The London factory is the largest establishment manufacturing permanent artificial limbs in the world today, with an output of approximately 12,000 limbs a year.

J. E. Hanger Inc., has cooperated closely with the War and Navy Departments and with the Veterans Administration during the present war. A knee assembly designed by the Hanger organization is now being produced for all government contractors who are supplying above-knee temporary artificial legs to the seven amputation centers. Also, the company has been awarded contracts for socket patterns and master sockets at all amputation centers, another contract for metal legs and an improved duralumin mechanical arm and is supplying, on contract with the Surgeon General, artificial legs for disarticulation of the hip, known as the tilting table leg.

A pamphlet entitled *What the Pharmacist Should Know About Hay Fever and Its Treatment* has been distributed by the professional service department, Frederick Stearns & Co., Division, Sterling Drug Inc., Detroit, Michigan.

Common causes and seasons of the disease are discussed, as well as its occurrence and reoccurrence, complications and treatment.

"Hay fever is a fairly common disease," the pamphlet states. "One authority reports there are 6,500,000 known cases in the United States. Hyperesthetic rhinitis cases comprise about 10 to 20 per cent of the hay fever group. Hay fever presents a formidable problem to the medical profession because each patient requires individual multiple treatments, and in addition, 30 to 40 per cent present complications which require additional treatment."

Patients are urged to avail themselves of specific desensitization with pollen extracts through consultation with their physicians "not only for the relief obtained, but because a high per cent of hay fever victims develop asthma."

"However," the pamphlet continues, "the largest percentage of patients do not avail themselves of desensitization treatment. For this large group, symptomatic relief must be provided orally, intranasally, by inhalation or by topical application to the eyes."



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SYMPATHOMIMETICS

Continuing to explore the field of sympathomimetics in which it has already established a high reputation, the research laboratories of Frederick Stearns & Co. Division, Sterling Drug, Detroit, has uncovered a compound called MCH (methyl-B-cyclohexylethyl) which appears to have possibilities for future development, according to Dr. Melville Sahyun, vice-president in charge of research.

MCH was one of several different amine compounds studied in the company's pharmacologic research laboratory by Dr. A. M. Lands and associates. A report on the study was published in a recent issue of the *Journal of Pharmacology and Experimental Therapeutics* (Vol. 83, No. 4, April 1945).

Besides being volatile, an advantage over other sympathomimetics now in use, of all the amine compounds investigated, MCH was shown to be most active in elevating blood pressure. It was also shown to be approximately as active as ephedrine, about a quarter as active as Neosynephrine and 1/250th as active as epinephrine. MCH likewise relaxed the intestinal musculature and the uterus (rat).

Dr. Sahyun and Dr. Lands point out that hitherto the cycloalkylamines have received little attention as sympathomimetic agents. Stearns was enabled to extend the investigation into this new field because of compounds synthesized by Professor F. F. Blicke, University of Michigan, working on a Stearns Fellowship.

UNRRA SPEEDS ANTIMALARIALS TO LIBERATED COUNTRIES

A vast program of malaria relief in liberated countries by UNRRA is revealed by orders for the antimalarial Atabrine placed with Winthrop Chemical Company, Inc., announced August 7 by Dr. Theodore G. Klumpp, president. Recent news dispatches have reported widespread malaria in Italy.

Buying for UNRRA, the United States Treasury Department has already placed orders with Winthrop for 92,000,000 Atabrine tablets, Dr. Klumpp said, while, under a proposed program for future expansion of aid to malaria victims abroad, there would be allocated an additional 300,000,000 tablets. This latter order would be delivered at a rate of 60,000,000 tablets a month for five months, commencing in November of this year and continuing to March 1946, inclusive.

Of the 92,000,000 tablets, sufficient to treat 6,000,000 cases of malaria, 80,000,000 were delivered in June, 6,000,000 in July, and the balance of 6,000,000 are being delivered in August.

Last December 26 sale of Atabrine was thrown open without restrictions, but the antimalarial was again placed under War Production Board allocation last July 1 to assure sufficient supply to the armed forces.

Winthrop, now working 24-hour shifts at its plant in Rensselaer, N. Y., expanded both personnel and equipment in the Atabrine division July 1. During that month Atabrine production reached a new high peak of 208,000,000 tablets, compared with a previous high of 140,000,000 a month. Before the war, production was 5,000,000 tablets a year.

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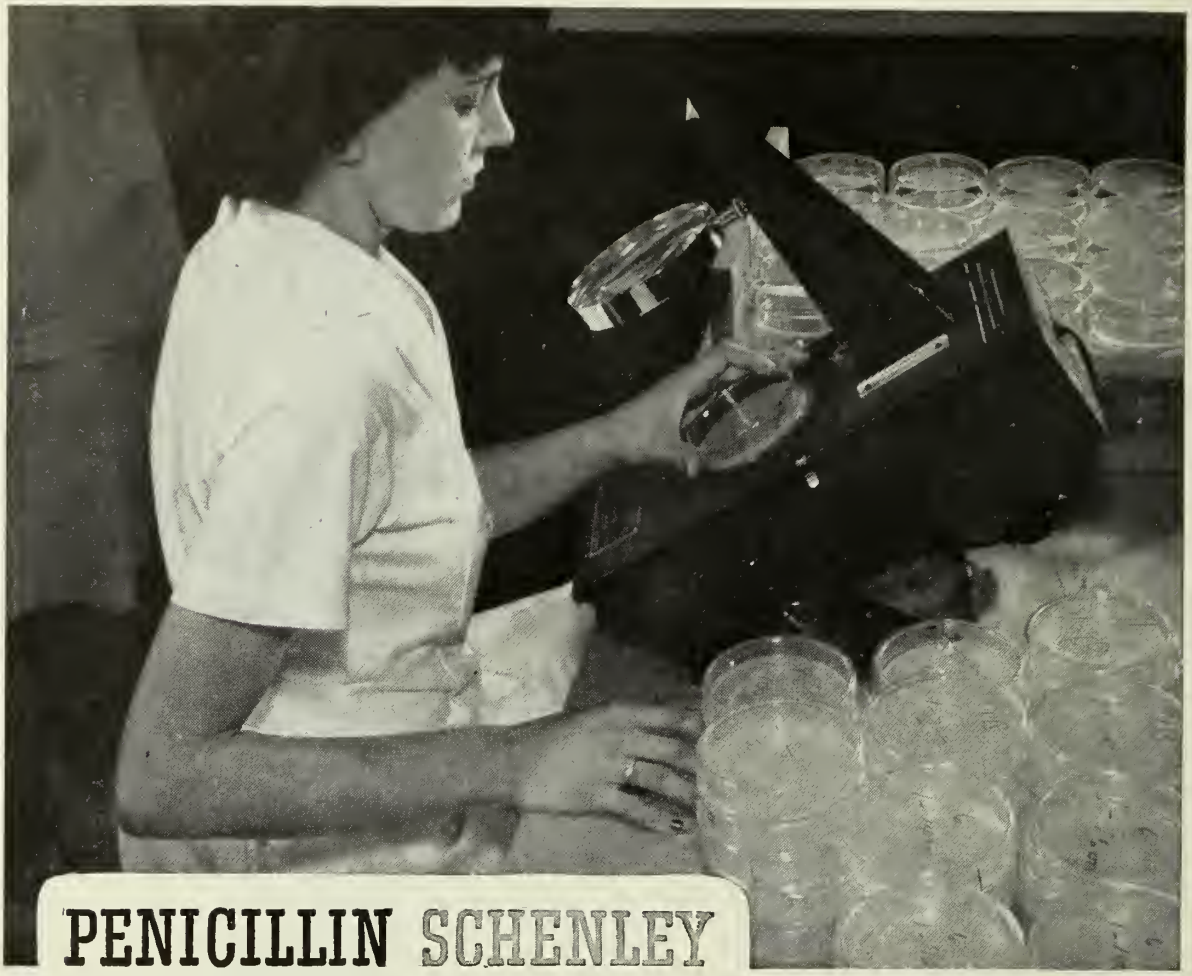
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Incident to the menopause, many women manifest exaggerated but temporary emotional disturbances such as profound *depression*. Most observers believe that the essential cause of these and other symptoms of the involutional syndrome attributable to hormonal causes is an imbalance of the essential sex hormone, therefore estrogenic therapy can be of help in restoring endocrine balance in the greater number of these cases. ● The effectiveness of Estrone Aqueous Suspension in affording relief from disconcerting menopausal symptoms has been attested to by physicians who have used it in clinical research and in general practice. Abbott's Estrone Aqueous Suspension is a suspension of pure crystalline estrone in isotonic sodium chloride solution to which is added 5.25 percent gum acacia to reduce the tendency of the crystals to settle out of suspension. ● It is especially suitable for women who are allergic to the oils commonly used as vehicles in estrogenic preparations. It is also of value in the treatment of patients in which a rather prolonged course of injections is usual. Because of its longer duration of action, the number and frequency of injections may be reduced in many of these cases. ● The suspension flows freely through needles as small as 24-gauge without producing untoward pain or induration after injection. You may obtain Estrone Aqueous Suspension through your pharmacy. It is supplied in 1-cc., 2-mg. ampoules in boxes of 3, 25 and 100. ABBOTT LABORATORIES, North Chicago, Illinois.

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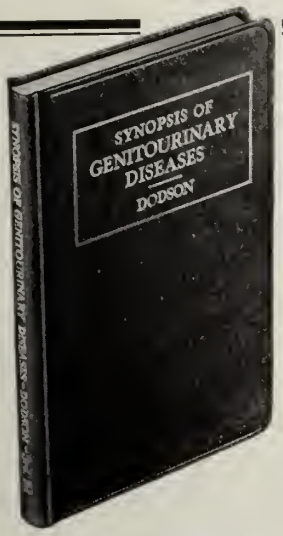
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Tumors

During the past few years notable advances have been made in chemotherapy and endocrinology. Uses and limitations of the sulfonamides have been more clearly defined, and penicillin is proving particularly effective in treatment of gonorrhea and other coccic infections. A discussion of these new developments and their application to urology comprise the principle changes in this new fourth edition.

In Chapter II the more recent sulfonamide drugs are discussed and the uses and toxic effects of this group are discussed more fully. A summary of present knowledge of the application of penicillin is given. These drugs are also discussed in the chapters on non-tubercculous infections. In Chapter XII attention is called to the value of castration and endocrine therapy in treatment of carcinoma of the prostate.

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Lem Toller allowed as how he was going to start his vacation then and there—and spend it fishing. Ed Mapes was going to take his family to Mountain City for a big feed and a picture show.

Dr. Walters had the last suggestion. "I'm going to pour a glass of beer and drink a toast to our fighting men," he says, "and that's as far as my celebrating's going to go. I'm going to make sure of being on the job next morning."

From where I sit, the doctor had the right idea. When Peace comes, there's going to be a whole new world to build . . . a big job to be done! A glass of beer, the beverage of moderation, and a good night's sleep to be ready for the task ahead—that's the right *way to welcome Victory!*

Joe Marsh

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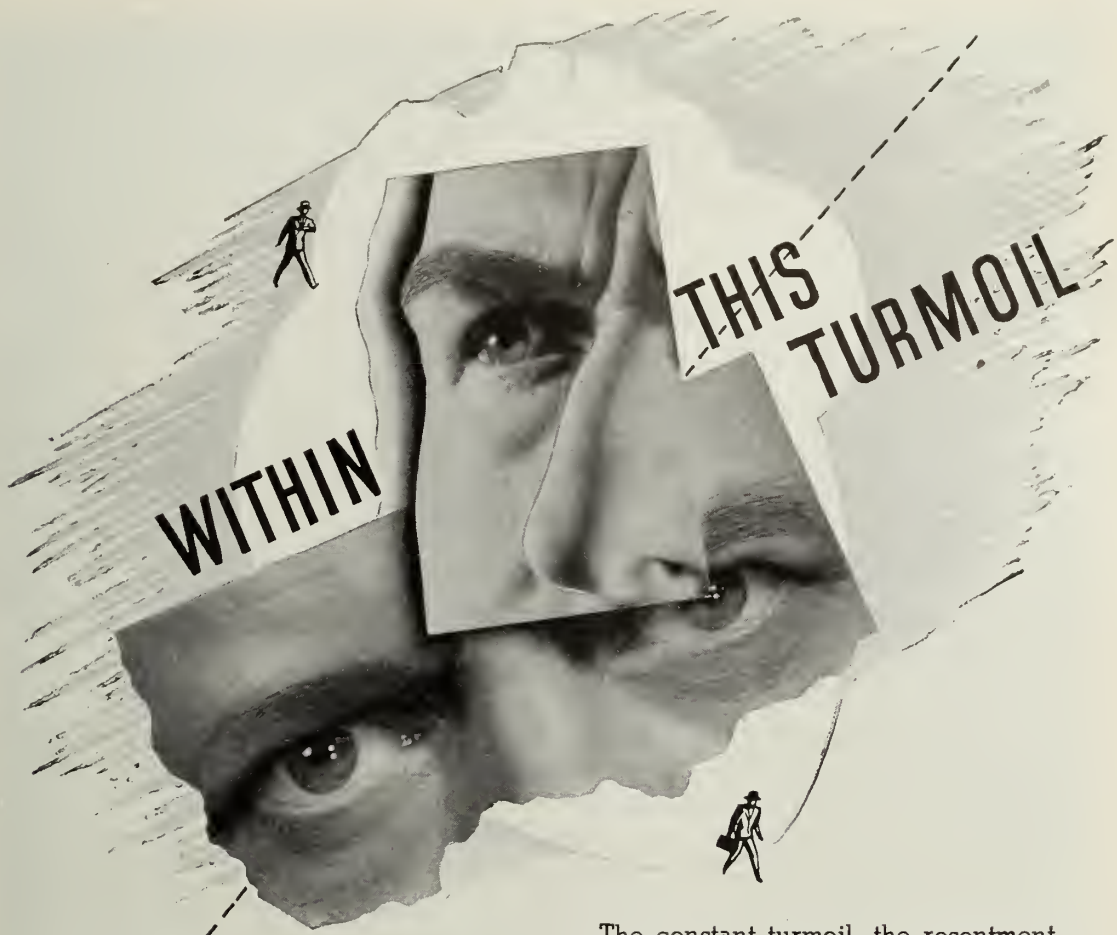
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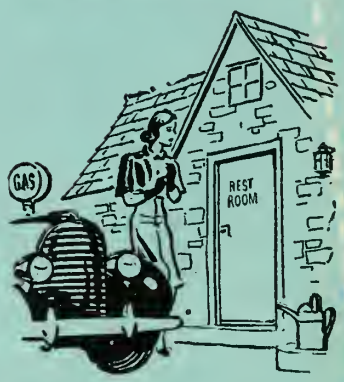
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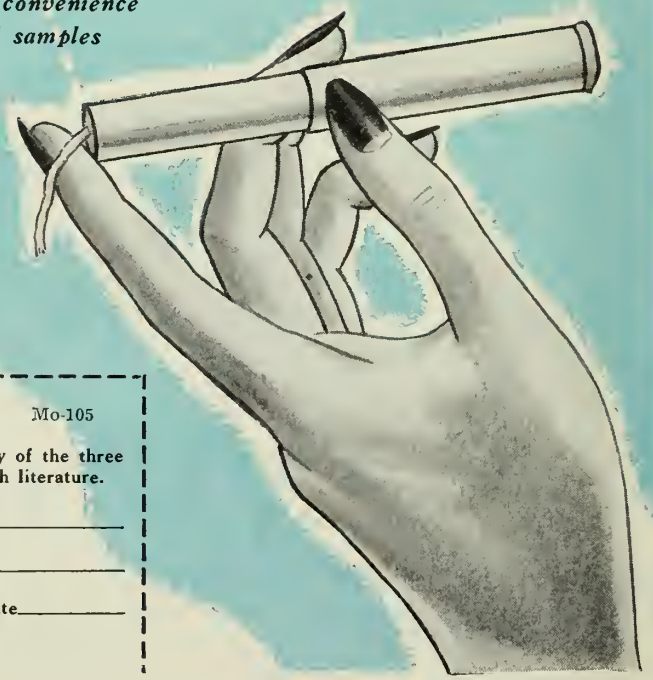
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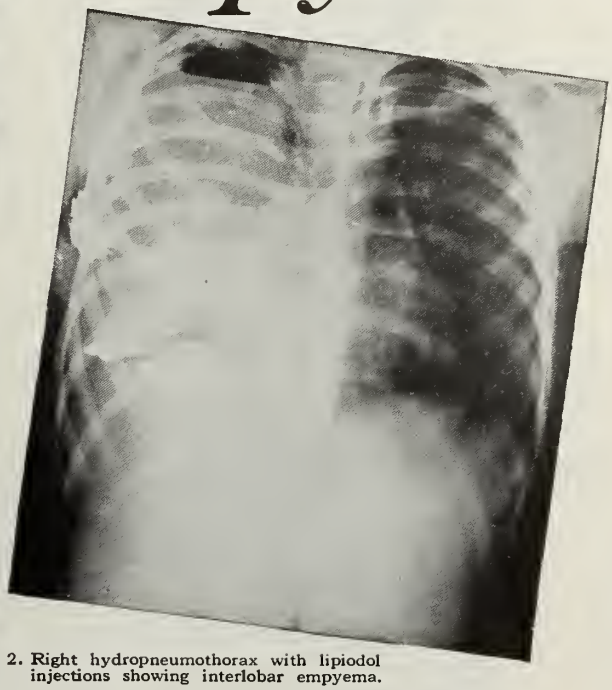
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2. Right hydropneumothorax with lipiodol injections showing interlobar empyema.

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In announcing the transfer, Mr. Clough said that it will make available an additional five-story building which will be used for manufacturing purposes. The company's plant consists of five buildings which occupy one city block at Damen Avenue and Jackson Blvd.

The move marks the sixth major expansion in the company's production facilities since its founding, as the Victor Electric Company, in a west-side basement workshop in 1895.

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*R. H. Follis, D. Jackson, M. M. Eliot, and E. A. Park: Prevalence of rickets in children between two and fourteen years of age, Am. J. Dis. Child. 66:1-11, July 1943.

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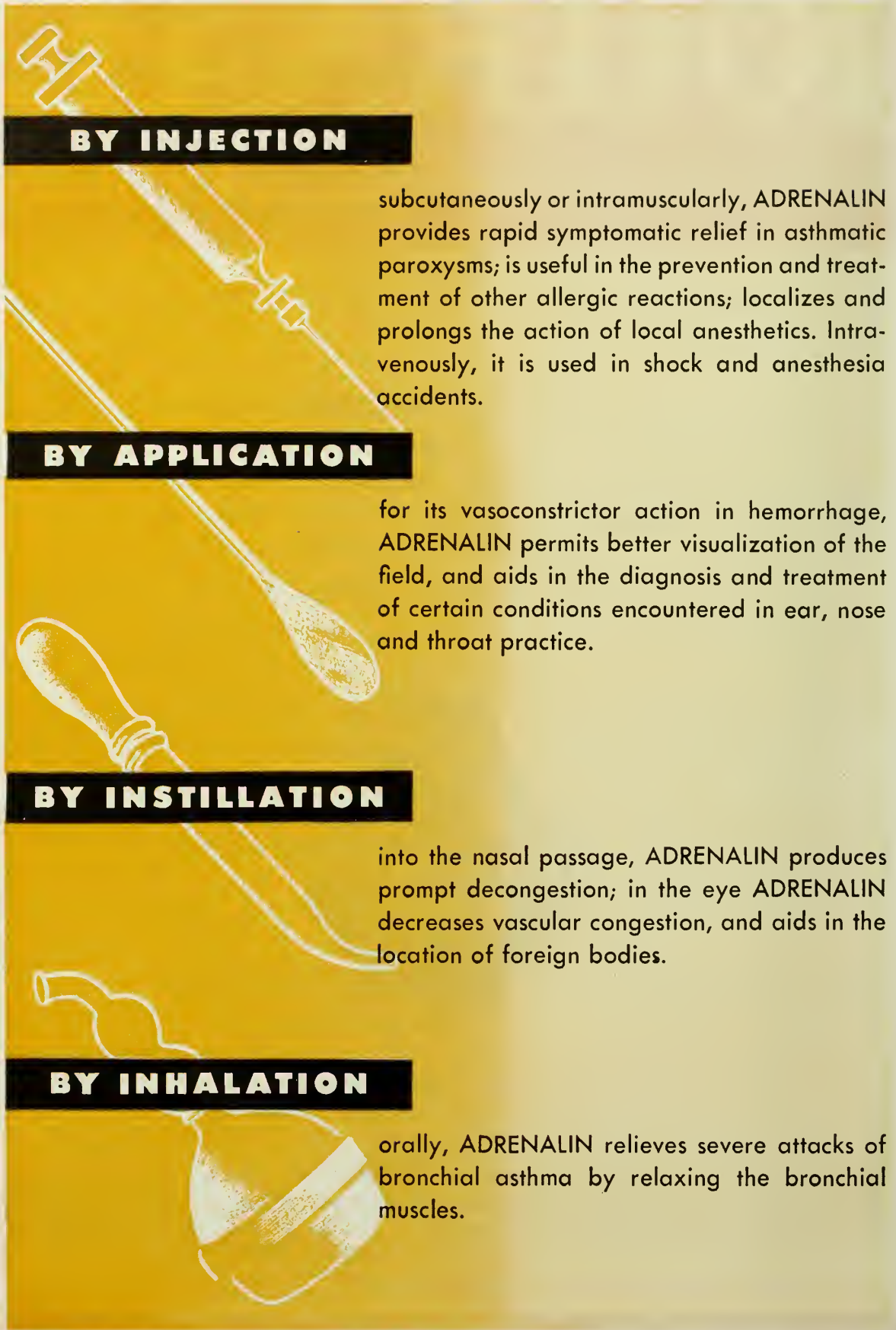
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Cancer Mortality

Clinics at Ellis Fischel State Cancer Hospital

(Contents Index Page 681)

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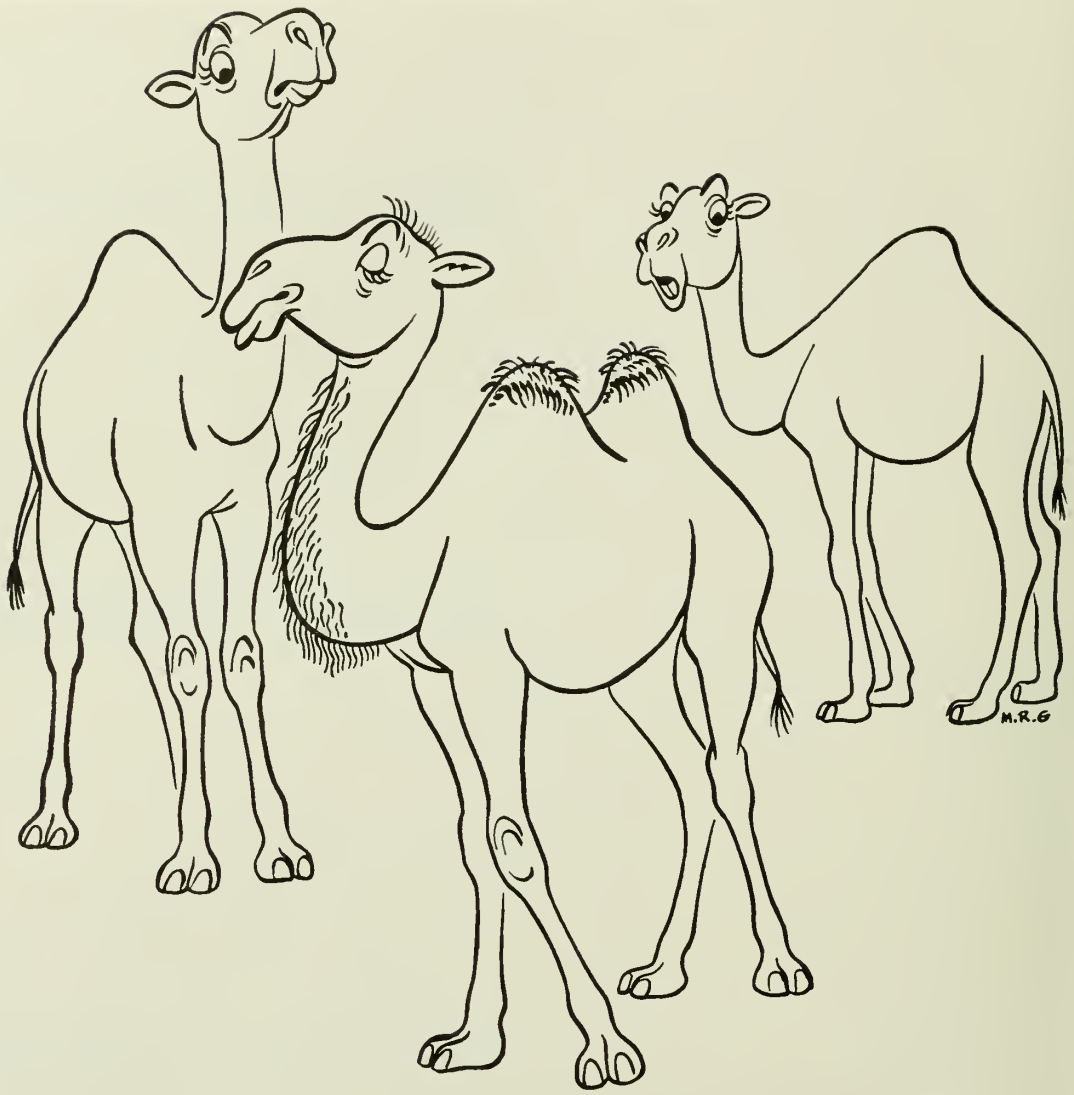
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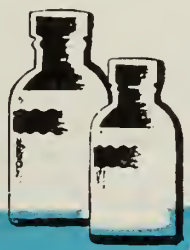
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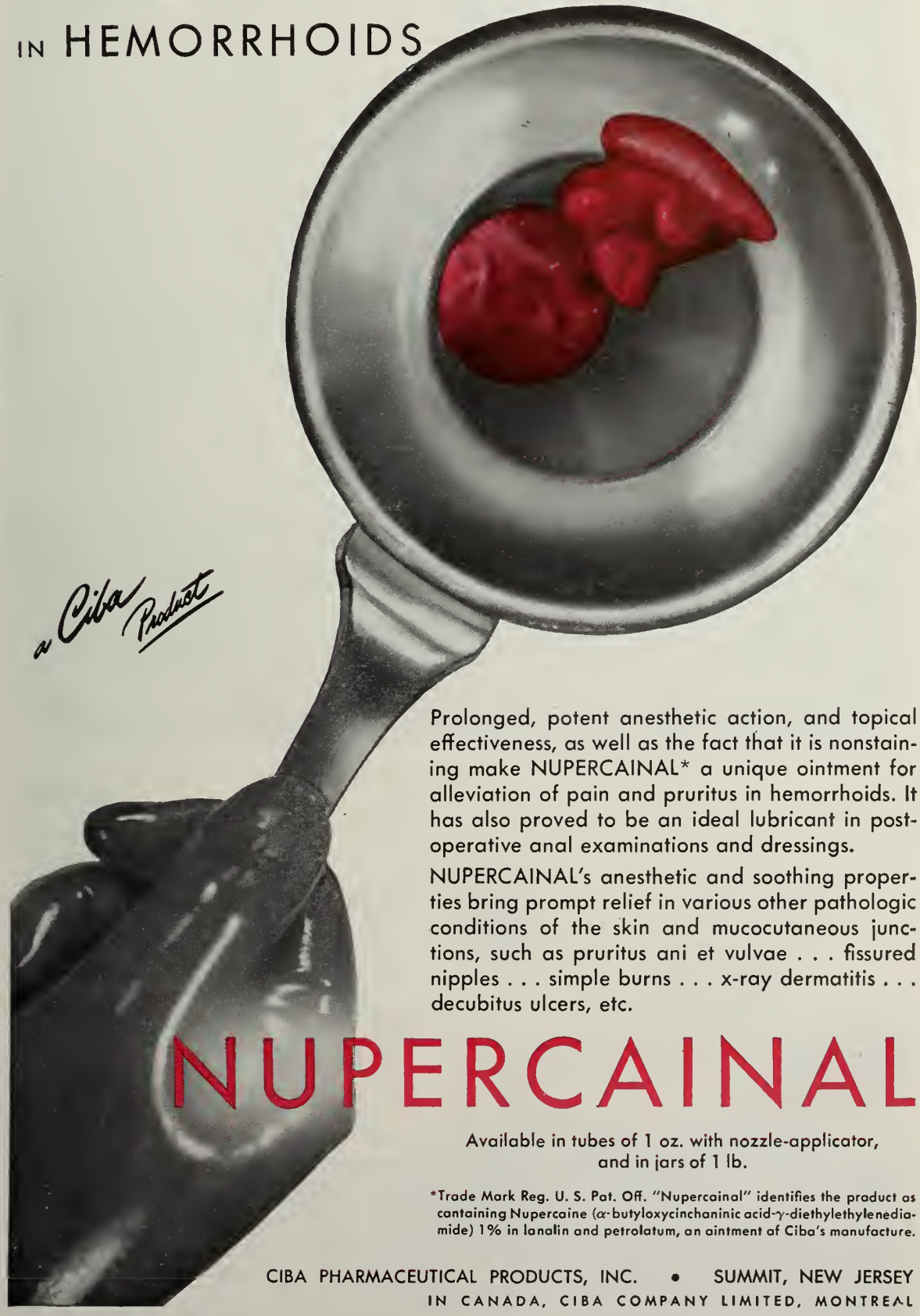
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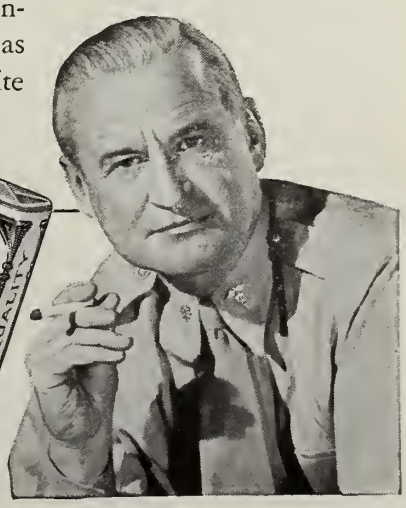
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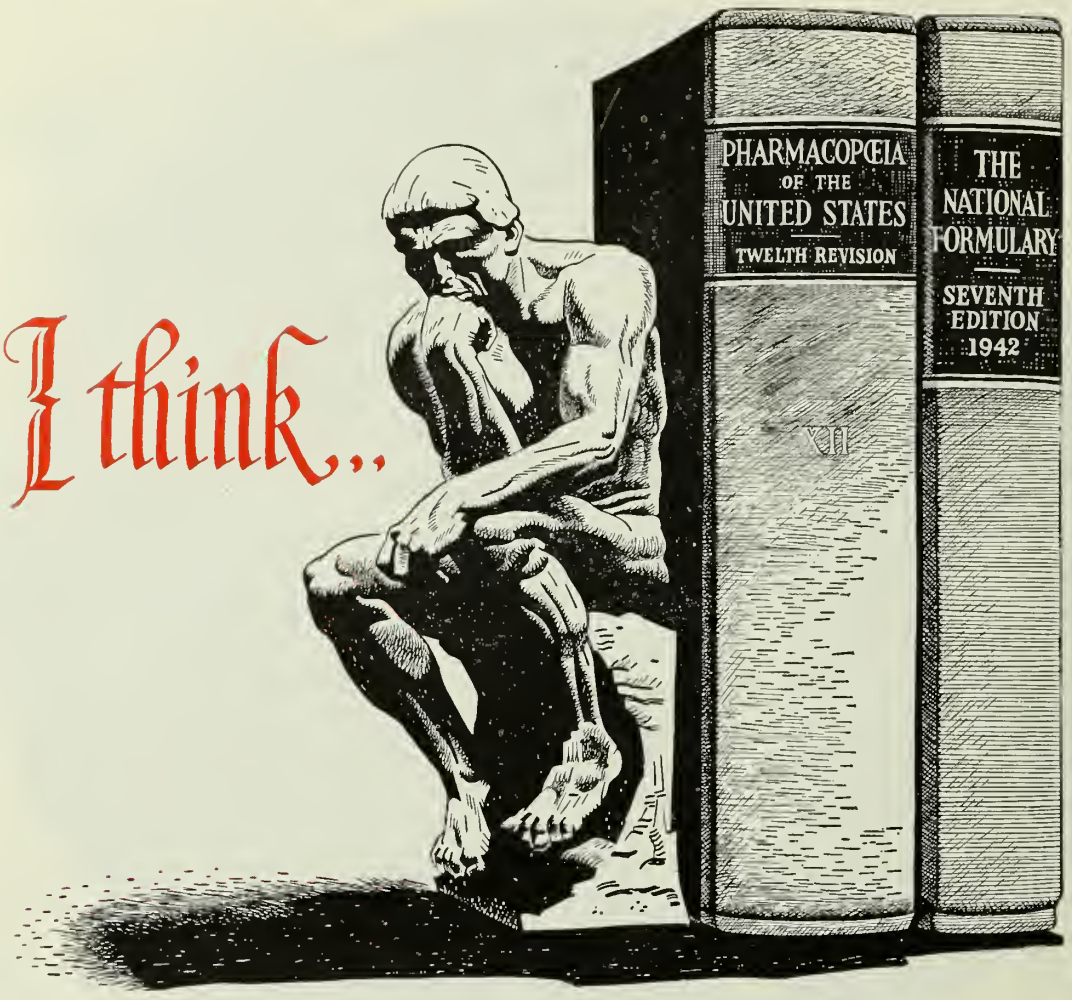
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INTESTINAL OBSTRUCTION

TWO CASES OF UNUSUAL ETIOLOGY

VINCENT T. WILLIAMS, M.D.
AND
HUGH BROWNING WALKER, M.D.
KANSAS CITY, MO.

The purpose of this presentation is to describe two relatively rare examples of intestinal obstruction. In one instance, obstruction was due to a hiatus formed by an adhesion between the tip of a Meckel's diverticulum and the base of its contiguous mesentery, with strangulation of an interposed intestinal loop resulting. The second case involved the fixation of a segment of ileum between the free closed limb of a previously performed lateral anastomosis and its fellow limb of ileum. The latter exemplifies the importance of complete fixation of the two blind intestinal segments in a lateral anastomosis, thereby eliminating any possibility of this type of obstruction.

CASE REPORTS

Case 1. Case 1 was a 31 year old male whose history revealed no previous abdominal surgery. On the day of admission he was awakened by severe generalized abdominal cramping. Pain later became more acute and somewhat localized in both lower quadrants. The white blood cells increased from 12,500 to 19,000 with 74 per cent polymorphonuclears during the six hours before hospital admission. The patient complained of slight nausea with no vomiting. Upon admission, physical findings had been partially masked by the administration of morphine sulphate, gr. ¼. There was still generalized lower abdominal pain, no muscular rigidity and the patient was only slightly distended.

A McBurney incision was made, exposing the cecum and appendix. The appendix was not inflamed but was removed prophylactically. Further exploration of the terminal portion of the ileum revealed a Meckel's diverticulum located approximately eighteen inches from the ileocecal junction. The tip of the diverticulum showed evidence of inflammatory reaction and it had adhered rather firmly to the mesentery of that portion of the ileum from which it arose. A loop of ileum had become interposed between the diverticulum and the mesentery forming an incomplete obstruction (figure 1).



Fig. 1

The tip of the diverticulum was freed by sharp and blunt dissection, thereby releasing the obstruction. The diverticulum was then resected at its base, treated with phenol and alcohol and closed with chromic catgut 00 on atraumatic needle and overlying interrupted black cotton sutures.

Case 2. Case 2 was that of a 41 year old female. Past surgical history revealed an intestinal obstruction in 1943 which was relieved by surgical procedure done elsewhere. Gangrenous changes in the small intestine at that time necessitated the removal of "approximately fifty inches (?) of small bowel." Lateral anastomosis was utilized to establish continuity. On hospital admission at 1:00 p. m., there was a history of insidious onset of generalized abdominal cramping starting four hours before admission. Pain became progressively more acute and was accompanied by nausea and vomiting. The white blood cell count at the time of admission was 14,300 with 84 per cent polymorphonuclears. A flat plate of the abdomen showed typical ladder-like arrangement of distended loops of small intestine. Increased peristaltic movements were discernible through the thin abdominal wall. Morphine sulphate, gr. 1/6, gave considerable relief while she was being prepared for operation.

A lower midline incision was made, excising the

From the Department of Surgery, St. Joseph Hospital, Kansas City.



Fig. 2

existing scar. The previous lateral anastomosis was exposed and adequate patency of the bowel, at that point, was ascertained. However, the blind portion of the proximal end of small intestine was free from the anastomotic site for a distance of approximately 8 cm. In the space between this blind pouch and its parallel limb of ileum another loop of ileum had become incarcerated, forming a complete obstruction (figure 2). Since there were no gangrenous changes, repair consisted merely of manual liberation of the involved segment. To prevent recurrence, fixation of the free end of intestine to its fellow portion of the ileum was effected by interrupted black cotton sutures.

Although this type of obstruction is extremely uncommon, it depends on a previous breach of surgical technic as well as the juxtaposition of the involved segments. Proper consideration and management should prevent its occurrence.

SUMMARY

Two cases of intestinal obstruction with unusual etiology are presented.

The prevention of the etiologic factor in the second case is emphasized.

836 Argyle Building.

CONTINUOUS DRIP PENTOTHAL SODIUM WITH SUPPLEMENTARY ANESTHESIA

SISTER M. CYRILLA, O. S. B.

BOONVILLE, MO.

Pentothal sodium (thiopentobarbital), an ultra-short-acting barbiturate, was introduced clinically by John S. Lundy[1] in 1934. It is from 30 to 50 per cent more potent than evipal, less toxic, and produces more satisfactory anesthesia. It is detoxified rapidly in the liver.

Pentothal sodium, a yellowish powder with a sulfur like odor, is prepared in ampules containing from 0.5 to 1.0 gram. For the intermittent method of administration, a 2.5 per cent to 5 per cent solution is prepared with sterile distilled water.

Previous to May, 1943, St. Joseph's Hospital had been using the intermittent method of 2.5 per cent solution with satisfactory results for minor procedures of short duration. At that time, desirous of using pentothal for major surgery, the continuous drip technic was adopted as introduced by Sister M. Barromea, O. S. F., Director, St. Francis Hospital School of Anesthesia, Peoria, Illinois.[2] After careful study, it was noticed that it was not necessary to administer a supplementary anesthetic as a routine measure. In view of the excellent results encountered, this report is made.

The following is a list of the supplies used: Sterile equipment: syringe, 20 cc.; needle, 20 gauge, 1½ inch; 100 cc. glass bottle; file; 250 cc. salvarsan tube with Murphy drip, rubber tubing, Kaufman syringe and shut-off clamp; long needle, 18 gauge for mixing solution; flask of normal saline; alcohol sponges. Nonsterile equipment: tourniquet; adhesive strips; arm board and muslin; airway; Bullowa hook for oxygen; ampules of pentothal sodium.

PREOPERATIVE PREPARATION

Preparation of patients for continuous drip pentothal sodium is similar to that followed in other types of general anesthesia. In a case admitted to the hospital to undergo surgery the following morning, in order to have the gastrointestinal tract as empty as possible, a liquid diet is the preferable one. A nembutal, grs. 1½, is given to insure a good night's rest and to allay fear of the impending surgical procedure. One hour prior to operation, the patient is given morphine gr. 1/6 and atropine gr. 1/150. In some instances in which the individual is highly excitable, another dose of nembutal, grs. 1½, is given in the morning also. Since hiccups, sneezing and laryngospasm may occur in some patients, the preanesthetic administration of atropine or scopolamine will serve as a prophylactic measure. A patient who has been given adequate premedication is a better subject for a smooth, easy induction and an even maintenance. This fact is borne out clearly in emergency cases when there is not sufficient time to allow for the full effects of the premedication, or when the patient receives no premedication whatever. In such cases it has been found that the induction period is somewhat prolonged, thereby requiring more of the anesthetic drug than that needed with a patient who has had adequate preparation. Weight, age, sex, metabolic rate, have a decided influence upon the amount of preliminary medication needed as well as upon the dosage of the anesthetic drug. It was concluded then, that the preliminary medication is perhaps one of the all important factors which rightly deserves credit for the success or failure of the anesthesia.

ADMINISTRATION

It is imperative that the one administering continuous drip pentothal have a thorough knowledge of the proper technic so as to avoid accidents and to secure satisfactory results.

For administration of continuous drip pentothal a 1 per cent solution is prepared by dissolving the contents of a one gram ampule in 100 cc. of sterile warm normal saline. It has been concluded that normal saline used as the solvent is more beneficial systemically than plain distilled water, espe-

cially when it is sometimes necessary to administer from 250 to 300 cc. of the solution over the period of one anesthetic. Care must be taken that the powder is thoroughly dissolved. For this mixture a 20 cc. syringe with a long 18 gauge needle attached is used. The 1 per cent solution of pentothal is placed in the salvarsan tube, all air is ejected from the rubber tubing and the salvarsan tube is suspended from a standard placed at the head of the operating table.

After the conventional check-up of the patient has been made as pulse, blood pressure, respiration, pupillary reflex, the arm board is placed on the operating table on the side opposite the surgeon. The arm, which is immobilized by means of a muslin strap placed securely around the hand and wrist, is cleansed with an alcohol sponge and tourniquet applied. To the Kaufman syringe is attached a 1½ inch gauge needle. The venipuncture is made, preferably using a vein in the antecubital fossa. The shut-off clamp is adjusted so that the Murphy drip will deliver a fairly rapid flow, usually about sixty drops per minute. During this time the patient is encouraged to talk. Consciousness is lost quite rapidly in from one half to one and one half minutes. Onset of anesthesia is manifested by a yawn, sigh, slurring speech, small pupils, relaxation of the jaw, loss of conjunctival reflex and a quiet shallow respiration. The average induction dose is about 25 cc. or approximately 0.25 gram. The remaining solution in the salvarsan tube is then diluted to 0.5 per cent by adding an equal amount of normal saline. The rate of flow is reduced to a slow drip, usually from twenty to twenty-five drops per minute and varied according to the needs of the individual patient and the amount required to maintain a smooth level of anesthesia.

Using the Bullowa hook, oxygen is started at the rate of from 4 to 5 liters per minute. All patients, whether anesthesia is of short or long duration, are given oxygen because it is felt that the continuous administration of oxygen during anesthesia will prevent anoxemia which frequently is encountered in pentothal sodium anesthesia, no doubt due to the depressed respiratory exchange accompanying a quiet, hardly perceptable respiration which is definitely present in pentothal sodium anesthesia. The administration of oxygen will prevent the pallor which sometimes develops with this anesthetic.

It must be kept in mind that a patent airway be maintained at all times. Care must be taken that the airway is not inserted too soon so as to prevent any laryngeal irritation. It is felt that the support of the jaw alone is insufficient. An airway may be inserted shortly after the jaw has relaxed By an adequate depth of anesthesia the unpleasant complications of laryngospasm are diminished greatly. Occasionally, in very light anesthesia, the patient will try to push the airway out. If this does occur, the airway is removed, the anesthesia deepened, and the airway reinserted. If the swallowing or cough reflex is irritated by the presence of blood and mucus, the material is aspirated and the anesthesia deepened.

The surgical stage of anesthesia is usually reached in from three to five minutes after the venipuncture is made, at which time the surgical field may be prepared. The rate of drip is set according to the needs of the surgical procedure, e.g., the peritoneum is very sensitive and a deeper anesthesia is required when it is manipulated.

There is no set standard of dosage for pentothal sodium drip as there are various factors which influence the amount of the drug needed for either induction or maintenance. A young, heavy, robust individual may require a gram or more for the induction alone, while an aged, debilitated, hyposthenic patient may need only a half gram for a lengthy procedure. The reaction of the individual patient is the best criterion for gauging the amount needed.

The maximum dosage of pentothal sodium with the drip technic has been 2¾ grams given over a period of three hours, and the minimum, ¼ gram, in one case lasting twenty-five minutes. Age, sex, nervous "make-up" of the patient, chronic alcoholism, premedication, depth of anesthesia required, type of surgery and length of operation are some of the cardinal factors influencing the dosage. Therefore, the conclusion from experience, evidenced by successful results, has been that the reaction of the individual patient to pentothal sodium is the best gauge to follow in determining the amount of the drug which may be given to any specific case without ill effects. Continuous pentothal sodium drip, in the hands of an alert experienced anesthetist, may be given in relatively large amounts with satisfactory results.

No doubt, many of the contraindications adhered to, up to the present time, will provide material for contradiction. The age group is one item of controversy. Continuous pentothal sodium has been administered to individuals ranging in ages from 7 to 75 with no ill effects, either immediate or later, which could be attributed to the anesthetic.

It has been observed in instances in which the patient became light under anesthesia, manifested by moving the arms or legs, or a deep rapid respiration, the abdomen will remain relaxed. From personal experience it has been concluded that the best criterion of impending light anesthesia is the change from a quiet shallow respiration to a deeper and more rapid one, a dilated pupil and a roving eyeball.

The following is a list of the types of operations performed under pentothal sodium without supplementary anesthesia from May 1943 to August 1944: appendectomy, amputation of extremity, bowel resection, biopsy of rectal tumor, broad ligament plastic, cholecystectomy, closed reduction of fractures, colostomy, colporrhaphy, conization of cervix, curettage, cystotomy, dilatation of cervix, excision of pilonidal cyst, excision of tumor of parotid gland, excision of Bartholin gland, exploratory laparoto-

my, extraction of teeth, fistulectomy, ganglionectomy, hemorrhoidectomy, hernioplasty, (all types), hydrocelectomy, hysterectomy, mammectomy radical, mammectomy simple, oophorectomy, open reduction of fracture, orchidectomy, perineorrhaphy, release of intestinal obstruction, removal of uterine polyp, salpingectomy, sequestrectomy, skin graft, spermatocystectomy, submucous resection, suspension of uterus, suturing of perforated peptic ulcer, trachelorrhaphy and minor operations, as application of casts, suturing of lacerations and tendons.

RECOVERY

When to discontinue the anesthetic depends upon the type of surgical procedure performed and upon the judgment of the anesthetist. Each anesthetist is aware of the length of time required for each type of wound closure.

In abdominal surgery, as soon as the peritoneum is closed, one discontinues the pentothal sodium. By the time the skin closure is to be made the patient usually will be reacting, characterized by a deeper respiration and movement of the extremities. If the patient has not reacted sufficiently by the time he is returned to bed, the airway is left in. It can be removed in a very short while.

Close watch must be kept on patients who have been given pentothal sodium until they have reacted completely. This fact cannot be overemphasized.

The period of recovery is extremely variable and depends on a great many factors such as the time required for the operation, depth necessary for the surgical procedure, the patient's power of oxidation and the amount of anesthetic administered. The patient will react by opening the eyes and answering questions, but will drop back into a peaceful sleep for several hours. It has been the experience that these require less postoperative medication for pain than those given other types of anesthetic. Postanesthetic opiates should be withheld until the patient has reacted completely from the anesthetic.

The recovery period from pentothal sodium drip has ranged from ten minutes to two hours and forty-five minutes. The average is from thirty-five minutes to one hour. If the color and respiration remain within normal limits, it is preferred to let the patient sleep for one hour or more. Then they seem to awaken as from a natural sleep. When a quick recovery is desirable or indicated, the administration of picrotoxin, metrazol or coramine will prove helpful.

CASE REPORTS

Case 1. Negro female, aged 38, weight 189 pounds, had a normal history except for fibromyomata of the uterus. The patient was admitted for subtotal hysterectomy. Hemoglobin was 65 per cent; red blood count 3,870,000; one plus albumin in the urine. Transfusion of 500 cc. of citrated blood was given previous to the operation. Premedication consisted of morphine gr. 1/6 and scopolamine gr. 1/150 given one hour previous to anesthetic. Temperature was 99.2 F., pulse 84, respiration 16, blood pressure 154/100. Induction was started on a 1 per cent solution using 0.25 gram over a period of one and one half minutes. Strength of maintenance solution was 0.5 per cent. Metal airway was inserted and oxygen given continuously by the Bullowa nasal hook. This procedure covered a period of approximately five minutes. During maintenance the blood pressure ranged from 154/100 to 180/110; pulse from 72 to 80; respiration from 16 to 24. Fibromyomata of the uterus, weighing 2,370 grams, was removed. A total dose of 2 grams of pentothal was given over a period of one hour and fifty minutes without the use of additional anesthesia. On return to the room the blood pressure was 180/100, pulse 80 and respiration 24. The patient was reacting slightly when returned to bed and regained full consciousness in thirty-five minutes. She did not complain of pain or discomfort until seven hours after the operation was done, when morphine gr. 1/6 was given. No nausea was present. Recovery was uneventful and the patient was dismissed on the sixteenth postoperative day.

Case 2. White female, aged 53, weight 124 pounds, was admitted for right radical mammectomy for carcinoma with lymph node metastases. Premedication of morphine gr. 1/6 and atropine gr. 1/150 was given one hour previous to anesthesia. Hemoglobin was 84 per cent; red blood count 4,390,000; trace of albumin in the urine. Blood pressure was 120/80, pulse 80, respiration 16. Induction period was two and one half minutes using 3/8 gram of 1 per cent pentothal sodium. Airway was inserted and oxygen started by Bullowa nasal hook. Incision was made fifteen minutes after induction was started. Operative procedure lasted two hours and twenty-five minutes, during which time a total amount of 1½ grams of pentothal sodium was given. Blood pressure ranged from 120/80 to 130/90; pulse from 80 to 92, respiration from 16 to 20. The patient was returned to bed in satisfactory condition and regained consciousness in one hour and twenty minutes. Color and respiration remained good during recovery. There was no nausea. Dismissal was on eighth postoperative day.

Case 3. White female, aged 44, weight 120 pounds, was admitted for hysterectomy for multiple fibromyomata. Hemoglobin was 91 per cent; red blood count 4,536,000; urine normal. Premedication of morphine gr. ¼ and atropine gr. 1/150 was given. A 1 per cent solution of pentothal sodium was started per drip method. Induction was one minute using about 0.25 gram. Maintenance solution was 0.5 per cent; airway was inserted and oxygen administered by Bullowa nasal hook. Operation was begun ten minutes after induction was started. Blood pressure ranged from the initial reading of 130/90 to 136/90; pulse from 90 to 96; respiration from 16 to 20. On induction the blood pressure dropped from 130/90 to 116/80 but became stable in about ten minutes. It was noted that when the peritoneum was clamped preparatory to wound closure, the patient reacted some, manifested by groaning, but the abdomen remained completely relaxed. A total of 0.75 gram was used for the entire procedure lasting one hour and thirty minutes. The patient did not complain of pain or discomfort for six hours following return to consciousness, which occurred ten minutes after return to bed. There was slight nausea and emesis one time. Recovery was uneventful and the patient was dismissed on the eleventh postoperative day.

SUMMARY

1. In the administration of pentothal sodium by the continuous drip method, the anesthetist has a better control over the patient. The continuous drip method eliminates the need of two persons at the head of the table.

2. Induction is pleasant. There is no excitement

stage and a rapid loss of consciousness follows. Patients commend it, and if they have to undergo another anesthetic, they choose the one "given with a needle in the arm."

3. Pentothal sodium is not advocated in any dilution for tonsillectomy as there is danger of the airway becoming obstructed by blood and mucus.

4. The airway must be patent at all times, preferably by means of a mechanical airway. Just holding the jaw is not sufficient.

5. Recovery is more pleasant and comparatively rapid.

6. Less nausea is present than with inhalation anesthetics. This fact is borne out when emergencies are admitted and given pentothal sodium soon after having eaten.

7. Pentothal sodium by the continuous drip method of 0.5 per cent solution produces very satisfactory narcosis in continuous spinal anesthesia, in which the time factor often proves quite uncomfortable to the patient.

8. There is usually a slight drop in the blood pressure on induction with a corresponding rise in the pulse rate, both of which return to the normal level after maintenance is established.

9. Pentothal, as in other anesthetics, must be chosen to suit the individual case. No set rule should be adhered to as no two cases will react alike. It should be used cautiously in borderline cases. Avoid its use in cases of coronary and liver damage, infections of the neck and throat complicated by edema, in the extreme age groups, and in severe anemia.[3]

St. Joseph's Hospital

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CASE REPORTS OF BARNES HOSPITAL

CLINICAL AND POSTMORTEM RECORDS USED IN WEEKLY CLINICOPATHOLOGIC CONFERENCES AT BARNES HOSPITAL, ST. LOUIS

W. BARRY WOOD, JR., M.D., and ROBERT A. MOORE, M.D., Editors

CASE 81

PRESENTATION OF CASE

H. E. F., a 19 year old white housewife, entered Barnes Hospital on April 5, 1945, and died May 4, 1945.

Chief Complaints.—Abdominal pain and weakness.

Family History.—Not significant.

Past History.—The patient apparently had always been in good health and had suffered no serious illness until two years previous to admission when a large ovarian tumor was removed. This was reported to have weighed twelve pounds and on section appeared to be a pseudomucinous cyst. An appendectomy was performed at that time. The systemic history was unrevealing. The patient lived in a small town under seemingly satisfactory environmental circumstances.

Present Illness.—Nine months previous to admission, during the sixth month of pregnancy, the patient developed frequent headaches and was found to have a systolic blood pressure between 180 and 190. She was placed on a salt-free diet. At term there was a spontaneous delivery, followed immediately by intense headache, nausea and vomiting for forty-eight hours during which time three short convulsions occurred for which magnesium sulphate was given. Thereafter she improved and felt well until five weeks previous to admission when she developed sudden sharp severe pain in the right upper abdominal quadrant. This was momentary and did not radiate but recurred during the day. Toward evening a severe shaking chill occurred, followed by a high fever for which sulfonamide drugs were administered. Fever and chills persisted for the next week or more and abdominal pain increased and became almost constant. The patient entered a local hospital and received penicillin. Gradually the temperature became normal. During this period she lost considerable weight, became weak, and developed anorexia and generalized muscle soreness. She received eight blood transfusions. Repeated blood counts showed a marked leukocytosis, at times more than 60,000, and an eosinophilia ranging between 30 and 40 per cent. She was sent to Barnes Hospital for diagnosis.

Physical Examination.—Temperature was 38 C., pulse 112, respiration 22 and blood pressure 104/80. The patient appeared acutely ill and in distress with severe abdominal pain. She was poorly nourished. The skin was dry and scaly with a blotchy brown pigmentation of the left lower flank. The pupils reacted normally and the fundi appeared normal. The lips were dry with cracks in the corners. The tongue was red and the papillae were somewhat atrophied. The lungs appeared to be normal but the diaphragms were high and moved poorly. The heart was normal in size and position. The rate was rapid. There was a gallop rhythm heard over the entire precordium. The abdomen was distended moderately and there was diffuse tenderness and some muscle guard throughout. The liver was palpable three to four finger breadths below the right costal margin and was very tender. The edge felt rounded but firm. Palpation of the spleen was difficult, but it was considered to be somewhat enlarged. No other masses or organs were felt definitely. No fluid wave was elicited. Pelvic examination showed a small corpus in the mid position. On rectal examination, small nodules were questionably felt high up behind the cervix. There was marked muscle tenderness in the right leg.

Laboratory Findings.—Blood count: red blood cells 3,790,000, hemoglobin 10.5 gms., white cells 102,500, differential count: eosinophils 34 per cent, juvenile forms 3 per cent, stab forms 23 per cent, segmented forms 32 per cent, lymphocytes 8 per cent. Urinalysis: specific gravity 1.010, albumin

negative, microscopic normal. Culture: *E. coli* and hemolytic *Staphylococcus aureus*. Kahn reaction was positive. Stool examination showed normal findings. Blood chemistry: total proteins 5.6 gms. per cent, albumin 2.8, globulin 2.8, icterus index 10, calcium 8.1 mg. per cent, phosphorus 4.1 mg. per cent, phosphatase 29 Bodanski units, cephalin flocculation test 2 plus, urobilinogen, bilirubin and Bence-Jones protein negative. Venous pressure was 160 mm. NaCl. Circulation time was 8 seconds. Blood culture showed no growth. Roentgenograms of the chest: The cardiac silhouette and aorta were within normal limits although the heart had a somewhat transverse position. There was considerable infiltration in the perihilar region on the two sides and along the descending bronchi. The appearance suggested edema within the lungs themselves. The pleural cavities appeared to be clear. The abdomen revealed a considerable amount of gas in the small intestine and a little in the large intestine suggestive of peritoneal irritation. There was a spina bifida occulta of the first sacral segment. Electrocardiograms revealed low voltage in all leads, T waves isoelectric in CF-2, inverted in CF-4, and diphasic in CF-6. Impression of myocardial damage was recorded. Skin tests for tuberculin and trichinella were negative.

Course in Hospital.—After medication, the patient became more relaxed and palpation of the abdomen revealed the spleen to be definitely enlarged four finger breadths below the costal margin. On the third hospital day she suddenly became short of breath. Except for moist rales at the left base, no cause for this episode was detected. The attack was accompanied by tachycardia with a rate of 140. The neck veins became distended and a cardiac lesion was suspected. Another attack occurred ten hours later. Cedilanid was given intravenously with gradual relief. On the fourth hospital day a sternal bone marrow puncture was made. The differential count was: eosinophils 21 per cent, C myelocytes 20 per cent, B (eosinophilic) myelocytes 9 per cent, metamyelocytes 1.4 per cent, band forms 14 per cent, segmented forms 12 per cent, normoblasts 19 per cent, late erythroblasts 5 per cent, megakaryocytes normal. The most significant change was the decided increase in eosinophilic cells but the marrow did not show the changes of an eosinophilic leukemia. Urea clearance was 26 per cent of maximum. Bromsulphalein test showed 64 per cent dye retention in 15 minutes and 40 per cent in 30 minutes. An exploratory incision was made over the liver. When the peritoneum was opened a large quantity of serosanguinous fluid was removed from the abdominal cavity. Report of biopsies deferred. Ascitic fluid showed a specific gravity of 1.013. There were 350 white cells with acid. No tumor cells were found in the sediment. The blood Wassermann was negative. The Kahn showed 4 units. Further blood counts revealed about 95,000 white cells with eosinophils between 32 and 35 per cent. The patient gradually lost strength and did not respond to supportive measures. The temperature was of a swinging type and irregular, high some days and lower on others. The pulse was elevated consistently. She expired quietly.

CLINICAL DISCUSSION

Dr. Harry Alexander: This is a remarkable case. In fact, it is almost a fabulous case. The total white cell count was more than 100,000 and there were more than 35 per cent of eosinophils. There are few diseases in man giving such a hypereosinophilia. Let us consider these diseases and compare the signs and symptoms of them with the signs and symptoms in this patient. There are, of course, many conditions which are associated with a mild eosinophilia. Notable are diseases of the skin. What is the commonest cause of hypereosinophilia, Dr. Taussig?

Dr. Barrett Taussig: Trichinosis.

Dr. Alexander: Trichinosis is apparently a common disease. What is the incidence in this country?

Dr. W. Barry Wood, Jr.: The incidence is high in urban areas. In examination of the diaphragm in autopsy material, living, dead or calcified larvae are found in from 15 to 40 per cent of all people.

Dr. Alexander: Of the many infected, probably only a few have the clinical disease. What symptoms did this patient have which are consistent with trichinosis?

Dr. Harold Scheff: Fever and muscular tenderness in the right leg.

Dr. Wood: She also had symptoms of cardiac failure and an abnormal electrocardiogram.

Dr. Alexander: Yes, those symptoms are consistent. Dr. Massie, is it true that there is cardiac failure in trichinosis?

Dr. Edward Massie: Yes, I have seen patients in whom the syndrome simulated coronary occlusion.

Dr. Alexander: I have just reread Dr. Gould's monograph on trichinosis and find that this woman had many signs and symptoms of the disease. Dr. Reinhard, do you wish to protest this diagnosis?

Dr. Edward Reinhard: It is somewhat unusual for the total white count to be so high. I would expect a patient who died of trichinosis to have more prominent pain in the muscles.

Dr. Alexander: Although it is not in the history, I have heard that a biopsy of muscle was made on this patient in her home town and was reported as negative. Would that rule out trichinosis?

Dr. Reinhard: Not if only a section were prepared. Many more positive specimens will be reported if the piece of muscle is pressed out between two glass plates and the fresh specimen examined.

Dr. Alexander: It is my understanding that if a section is taken from a tender muscle, the chance of seeing larvae is very good. The infestation per cubic millimeter is extremely high.

Dr. Wood: What about the many abdominal symptoms the patient had? Those are not seen in trichinosis.

DR. ALEXANDER: You are quite right, but let us continue with this problem of trichinosis for a moment. The skin test was negative. How reliable is this test?

DR. CARL HARFORD: It is fairly reliable, but I do not know how many false negative tests are observed.

DR. KEITH WILSON: Some who have used it are enthusiastic and say it is reliable.

DR. ALEXANDER: It is my impression that if a proper antigen is used, the test is as reliable as most skin tests.

DR. WILSON: Another point against the diagnosis of trichinosis is that in this disease the eosinophilia usually drops during the terminal phases before death.

DR. LLEWELLYN SALE, SR.: How frequently are trichinae found in spinal fluid?

DR. ALEXANDER: I do not know the exact figures but this method has been used in diagnosis, especially in those patients who have prominent lesions about their eyes. Are there any other suggestions?

DR. MASSIE: I would suggest eosinophilic leukemia.

DR. ALEXANDER: Let us ask Dr. Carl Moore whether or not there is such a disease.

DR. CARL V. MOORE: There certainly are forms of myelogenous eosinophils predominate. However, the bone marrow in this patient did not show the signs of leukemia. I do not believe this patient had eosinophilic leukemia.

DR. ALEXANDER: What do you say, Dr. Reinhard?

DR. REINHARD: I agree with Dr. Moore.

DR. ALEXANDER: Are there other suggestions?

DR. MASSIE: Hodgkin's disease is a possibility. The total white count is a little high and the relative eosinophilia is greater than in the usual example of Hodgkin's disease.

DR. ALEXANDER: Dr. Sale, what is your reaction to this possibility?

DR. SALE: I did not think that the patient had Hodgkin's disease.

DR. ALEXANDER: I must confess that my own diagnosis when I saw this patient on the ward in the hospital was Hodgkin's disease. There are a few reports on what is called eosinophilic Hodgkin's disease. The patients have fever, hyperleukocytosis, hypereosinophilia and enlargement of the spleen. The relative count shows as many as 70 per cent eosinophils. Dr. Moore, what is your opinion about eosinophilic Hodgkin's disease?

DR. CARL V. MOORE: It certainly exists. I also rather favored the diagnosis of Hodgkin's disease at the time of the patient's stay in the hospital. The spleen was not as large as is usual.

DR. ALEXANDER: What other conditions will give hypereosinophilia?

DR. SALE: Periarteritis nodosa.

DR. ALEXANDER: What is the incidence of eosinophilia in periarteritis nodosa?

DR. WILSON: About 20 per cent.

DR. ALEXANDER: I would add that in only 3 per cent is there such hypereosinophilia as was observed in this patient. In these few cases the total count may be more than 50,000 and the eosinophilia more than 50 per cent. What is there about this patient in keeping with periarteritis nodosa?

DR. WOOD: There are many signs and symptoms. But periarteritis nodosa with hypereosinophilia is so rare that I do not believe that we need consider it.

DR. ALEXANDER: Are there other suggestions?

DR. SALE: Loeffler's syndrome.

DR. ALEXANDER: Will you tell us something about this syndrome?

DR. SALE: I learned all I know from you. It is a condition characterized by hypereosinophilia and a pecular infiltration of the lung. The patients all get well.

DR. ALEXANDER: A similar condition has been described in the tropics under the name of tropical eosinophilia. A few of these patients have the symptoms of asthma. Arsenic has been used successfully in treatment. Are there other suggestions?

DR. SALE: Echinococcosis.

DR. HARFORD: The skin test on this patient for disease was negative. We used an antigen prepared from the dog tapeworm. Dr. Tsuchiya tells me that the antigens of the dog tapeworm and of the echinococcus are the same and that this is a reliable test.

DR. ALEXANDER: How common is echinococcosis in the United States?

DR. HARFORD: It is rare, but we have seen a few patients in St. Louis.

DR. ALEXANDER: Most patients with echinococcosis have lived abroad or were born in Europe. Some years ago there was a report of all examples of echinococciasis in the United States since early in the nineteenth century. About 500 authentic cases were collected and only 22 of these were in native Americans or Canadians. This author figured that the chance of a native North American developing echinococcosis was one every five years for the entire continent.

DR. SALE: Is a false positive Kahn reaction seen in any of these conditions we have been discussing?

DR. GURNEY CLARK: The list of conditions resulting in falsely positive serologic tests for syphilis is mounting. Among these are certain febrile conditions.

DR. ALEXANDER: Are there other suggestions?

DR. TAUSSIG: In reading in preparation for this conference I saw a reference to a case of carcinoma of the cervix associated with the picture of eosinophilic leukemia. I would like to suggest that possibility.

DR. ALEXANDER: Dr. Allen, will you tell us something about that?

DR. WILLARD ALLEN: Hypereosinophilia is unusual with carcinoma of the uterus, but it does occur. However, I think it fairly certain that this patient did not have a carcinoma of the uterus.

Dr. Alexander: Dr. Moore, do you believe that this patient had a leukemoid reaction?

Dr. Carl V. Moore: Yes.

Dr. Alexander: In what conditions is a leukemoid reaction observed?

Dr. Carl V. Moore: In many conditions, especially those in which there is a fever. Tuberculosis is probably the most common. However, any disease in which there is involvement of the bone marrow may give a leukemoid reaction. In the early days of the sulfonamide drugs we saw leukemoid reactions from sulfonidamide and sulfapyridine, but the drugs used today rarely produce this picture.

Dr. Alexander: Have you ever seen hypereosinophilia with a tumor?

Dr. Carl V. Moore: No, but I have read about them and I do not doubt the existence of the combination.

Dr. Alexander: Are there reports of hypereosinophilia with ovarian tumors?

Dr. Reinhard: Downey, in his textbook, mentions that carcinoma of the uterus may be accompanied by eosinophilia, and also makes note of carcinoma of the intestine and a few sarcomas. Wintrobe has one sentence which states that hypereosinophilia may be associated with tumors of the ovary.

Dr. Clark: I also read that and may I make a correction. It is not even a sentence. It is a phrase set off by commas in a sentence which gives prominence to periarteritis nodosa.

Dr. Alexander: This patient had a pseudomucinous cystadenoma of the ovary removed two years before her death at the age of 17. Dr. Allen, are these tumors ever malignant?

Dr. Allen: Yes, and a free interval of two years is quite consistent with such a diagnosis. It is rather unusual, however, to see a malignant tumor of this type in a patient only 17 years old. When I saw this patient in the hospital I did not know that a diagnosis of pseudomucinous cystadenoma had been made from a study of the pathologic slides. However, the existence of a twelve pound cyst in a girl of 17 would suggest this diagnosis. After removal of the cyst, she conceived and went through a normal pregnancy except for postpuerperal eclampsia. Survival after the removal of a malignant cystadenoma may be as long as five years. The usual story in this type of patient is that, after several years, they note progressive enlargement of the abdomen, but they are not acutely ill as this patient was.

Dr. Alexander: What is the character of the fluid in the abdomen?

Dr. Allen: In pseudomyxoma peritoniae the fluid is much thicker than it was in this patient.

Dr. Llewellyn Sale, Jr.: There was pigmentation over the lower abdomen and we wondered whether or not she had received roentgen ray treatment.

Dr. Allen: I do not know.

Dr. Alexander: I do not believe that we can make a definite diagnosis in this patient. The conditions which produce hypereosinophilia have been discussed, and from all the evidence, it seems most likely that she has a malignant tumor, possibly of the ovary.

ANATOMIC DIAGNOSIS*

Ascites (4,500 cc.).
Acute pyelonephritis, right.
Chronic pyelonephritis, left.
Hydronephrosis, bilateral, left, advanced; right, slight.
Hydroureter left.
Lymph nodes.
common iliac lymph nodes and peripancreatic
spleen, kidneys, heart, vertebrae, left ureter, left
the left periovarian tissue, peritoneum, liver, lungs,
Pseudomucinous cystadenocarcinoma involving
sence of the left ovary and appendix.
Healed surgical wounds of the abdomen and ab-

PATHOLOGIC DISCUSSION

Dr. Robert A. Moore: The gross observations at autopsy included the presence of nodules of neoplastic tissue in the left periovarian region, peritoneum, liver, lungs, spleen, kidneys, heart, vertebrae, left ureter, left common iliac lymph nodes and peripancreatic lymph nodes. The tumor had involved the tissue about both ureters and there was a consequent hydronephrosis and in the right kidney an acute pyelonephritis. There was an excessive amount of fluid in all of the serous cavities, 4,500 cc. in the abdomen, 400 cc. in each pleural cavity, and 150 cc. in the pericardial cavity.

On the basis of the gross examination, we may assume that this patient had a recurrence with metastases of the tumor of the left ovary. Microscopic study of the tumor in many locations shows a structure consistent with carcinoma of the ovary.

CASE 82

PRESENTATION OF CASE

H. L. C., a 55 year old married laborer, entered Barnes Hospital on May 28, 1945, and died June 24, 1945.

Chief Complaints.—Fever and weakness.

Family History.—Irrelevant.

Past History.—The patient had had typhoid fever at the age of 13, pneumonia at 17 and malaria when 49 years of age. Otherwise he apparently had been well and did hard physical labor until late in November, 1942, when he began to have frequent attacks of pain in the right lower abdomen. These attacks were not associated with nausea or vomiting nor did they seem to interfere with his general health but, because of the recurrence, he submitted to an operation for appendectomy in November, 1943. There was no further recurrence of pain. The systemic history was not notable other than that he was told at one time that his blood pressure

* This is not the printer's or the proofreader's error. It is to assist the reader who wants to make up his own mind about the diagnosis but whose curiosity is too consuming.



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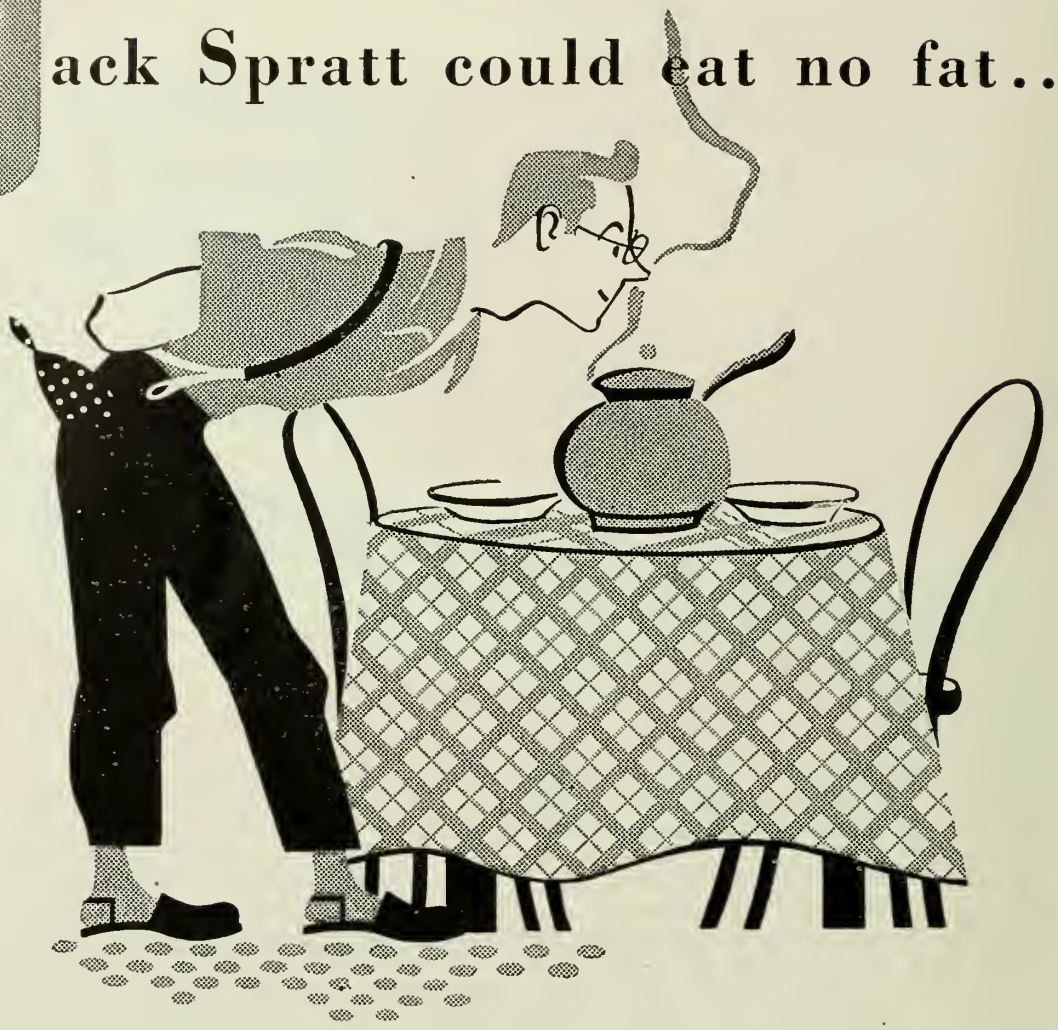
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*Synopsis of Materia Medica, Toxicology, and Pharmacology, Davison, F. R.: Hormones, St. Louis, The C. V. Mosby Company, 1942, p. 582.

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was slightly above normal. His habits were moderate.

Present Illness.—In February, 1944, the patient developed a head cold which persisted for several weeks. On taking his temperature he found that it frequently rose to 101 F. or slightly more. No chills occurred. During this time he felt rather weak and listless. In April he went to his doctor who made a diagnosis of malaria and treated him with quinine which he took for the subsequent six months. During this time, fever persisted, weakness increased and there were symptoms of general malaise. In October the patient went to another doctor who examined his blood and told him that he had no malaria but a rather marked anemia. He received from 18 to 20 injections of liver extract and was given iron by mouth without noticeable improvement. In December he went to the Vanderbilt University Hospital where he received a complete examination. The report from that hospital states that no definite diagnosis was arrived at other than hypochromic anemia and fever of undetermined cause. While there he received radioactive iron. In March, 1945, the patient still remained unimproved and went to a local hospital where roentgenograms of the teeth revealed some abscesses. Three teeth were extracted. Shortly afterward, a transfusion was begun but was interrupted in a few minutes because of marked shortness of breath. The patient received eighty-eight injections of penicillin which temporarily reduced the fever. Two weeks previous to admission to Barnes Hospital a persistent hacking cough had begun and had continued. Increasing weakness, dizziness and faintness compelled him to remain constantly in bed. He was sent to Barnes Hospital for diagnosis. He had lost but 10 pounds during his illness.

Physical Examination.—Temperature was 38 C., pulse 100, respirations 20 and blood pressure 120/75. The patient was a well developed, middle aged man who appeared weak and chronically ill. There was marked pallor of the skin and mucous membranes. During the examination he had a moderately severe non-productive cough. The pupils were equal and regular but reacted sluggishly to light. The fundi showed no abnormality. The remaining teeth were carious. The mucous membrane of the mouth was pale. There were a few moist rales at the base of the left lung but no other pulmonary pathologic signs. The heart was not enlarged; the rhythm was regular. There was a soft systolic apical murmur; no transmission was recorded. The abdomen presented a postoperative scar in the right lower quadrant. In the right upper quadrant definite resistance on palpation and dulness to percussion extending about four fingerbreadths below the costal margin were elicited. No edge could be felt and there was slight tenderness over this area. The prostate was enlarged moderately. There was no edema of the extremities. No lymphadenopathy was present. The reflexes were physiologic.

Laboratory Findings.—Blood count: red blood cells 3,200,000, hemoglobin 4.5 gms., white cells 10,000, differential count: juvenile forms 1 per cent, "stab" forms 8 per cent, segmented forms 66 per cent, lymphocytes 22 per cent, monocytes 3 per cent. The red cells were very hypochromic. Urinalysis: specific gravity 1.017, albumin 1 plus. Stool examination was negative. Kahn reaction was negative. Blood chemistry: nonprotein nitrogen 42 mg. per cent, total proteins 7.2 gm. per cent, albumin 3.4, globulin 3.8, blood culture showed no growth. Blood agglutination for brucella was negative. Blood indices: mean corpuscular volume 61 cu. mic., mean corpuscular hemoglobin 14 micrograms, mean corpuscular hemoglobin concentration 23 per cent. Sternal marrow, differential count: eosinophils 2 per cent, "C" myelocytes 27 per cent, metamyelocytes 25 per cent, band forms 21 per cent, segmented forms 12 per cent, primitive forms 9 per cent, plasma cells 3 per cent, megakaryocytes 1 per cent. There were 151 nucleated red blood cells. Roentgenograms of the chest showed normal lung markings and a normal cardiac silhouette. The aorta was lengthened. Gastrointestinal series was negative throughout. Electrocardiogram showed sinus tachycardia.

Course in Hospital.—The patient, whose blood group was 0 and Rh negative, was given a series of transfusions after which the red blood cells rose to 4,190,000, the hemoglobin to 9.4 gm. and the reticulocyte count to 9.2 per cent. Subsequent examinations of the abdomen revealed a persistence of the possible mass in the right upper quadrant which was described as liver by several observers. Liver function tests gave the following results: After an intravenous hippuric acid injection none was recovered in the urine. Bromsulphalein test showed 40 per cent dye retained at thirty minutes. Cephalin cholesterol flocculation test was negative. The icterus index was 6.7. Total blood proteins showed 6 gm. per cent, albumin 2.9 and globulin 3.1. About two weeks after admission, edema of the ankles appeared and gradually progressed and was soon followed by distention of the abdomen. Urinalyses showed no albumin or other abnormal findings. One month after admission the patient complained of shortness of breath and vomited several times during the following week. The vomitus contained no blood. Nothing of significance in the cardiorespiratory system was found. There was only an occasional rale at the base of the right lung. The venous pressure was 118 mm. H_2O. Decholin circulation time was twelve seconds. Respirations became deep and rapid and frank air hunger developed the day before death. The patient was not cyanotic. He slowly became less responsive. The right pupil was somewhat larger than the left but neurologic findings were otherwise not remarkable. A lumbar puncture showed an initial pressure of 115 mm. The first tube was very xanthochromic. The second and third tubes were clear. There were two cells without acid. Pandy

test was 2 plus. As air hunger increased the urine developed a 2 plus albumin. The blood nonprotein nitrogen was 42 mg. per cent, sugar 29 mg. per cent, the CO_2 combining power 25 volumes per cent, and the blood pressure had risen to 150/100. Subcutaneous injections of 1/6 molar sodium lactate did not alter the course of the acidosis. Distended veins appeared over the abdomen and throat. The patient became rapidly worse and expired a day or two after the onset of dyspnea. During his hospital stay he ran an irregular temperature which never rose above 38.5 C.

CLINICAL DISCUSSION

Dr. Harry Alexander: This patient presented a difficult diagnostic problem which was never solved during his lifetime. The outstanding and consistent signs were anemia and fever. The fever was never excessive and during the month in the hospital did not go above 101 F. The anemia was hypochromic. Dr. Reinhard, will you interpret the laboratory observations in relation to the anemia?

Dr. Edward Reinhard: This patient had a microcytic hypochromic anemia. The mean corpuscular volume was 61 and the lowest limit of normal is 72. The mean corpuscular hemoglobin was 14, an extremely low volume since the lowest range of normal is about 30. The mean corpuscular hemoglobin concentration was 23 per cent, which again is low as the lowest normal is about 33 per cent. In other words, this man had small red blood cells and a small amount of hemoglobin in each blood cell. Further, the decrease in hemoglobin was greater than the decrease in the size of the cells. These observations point directly to chronic loss of blood as the cause of the anemia. The only point against this is the report from the hospital at Vanderbilt University. They administered radioactive iron and determined the amount of absorption as less than 1 per cent of that ingested. In a normal patient, about 10 per cent of ingested iron is absorbed. If the patient has an iron deficiency, such as follows chronic loss of blood, there will be increased absorption up to 30 or 40 per cent of that ingested. In other words, the gastrointestinal tract absorbs or rejects iron in accordance with the needs of the body.

Dr. Alexander: How do you interpret the differential count on the sternal bone marrow?

Dr. Reinhard: These observations point also to chronic hemorrhage. In normal sternal bone marrow there are rarely more than thirty nucleated red cells per 100 white cells. This man had 151, indicating a greatly increased activity of the erythroid cells. Another observation indicative of deficiency of iron is the response of reticulocytes after transfusion. In patients of this sort, the transfused blood serves as a source of iron.

Dr. Llewellyn Sale, Jr.: This patient was given iron intravenously.

Dr. Reinhard: The reticulocytic response may then be accounted for by the iron, but the significance is the same.

Dr. Alexander: It is apparent then that all of the evidence, except that from Vanderbilt, points to a chronic loss of blood. On the other hand, this man was observed over a year and no loss of blood was detected. There was no blood in the stool and no blood in the urine at any time when these fluids were examined. He did not at any time vomit blood. Was there some sort of bleeding which we did not detect or is there an exception to this rule which you have given us?

Dr. Reinhard: There are rare exceptions. May I suggest that bleeding occurred before he came under medical observation.

Dr. W. Barry Wood, Jr.: Is it possible that this man, 55 years old, had poor absorption of iron, possibly because of senile achlorhydria?

Dr. Reinhard: Yes, that is possible, but the anemia in this patient was very severe. In the anemia of the chlorotic type the decrease of the red blood cells is usually only moderate.

Dr. Alexander: There was a mass in the right upper quadrant of the abdomen, probably an enlarged liver. To recapitulate for a moment, this patient had an enlarged liver, a depressed liver function, fever, reversal of the albumin-globulin ratio, ascites, and enlarged veins on the surface of the body. All of these symptoms might be used to deduce that he had a primary disease of the liver.

Dr. Reinhard: I do not accept the negative report on the hippuric acid test. It assumes that renal function was normal. This patient died of acidosis, and I think it likely that he had some renal damage.

Dr. Alexander: There are, however, other liver function tests; for instance, the bromsulfalein which indicated hepatic damage. Are there suggestions concerning the nature of the lesion in the liver?

Dr. Harold Scheff: Carcinoma of the liver, either primary or secondary.

Dr. Alexander: Is depression of liver function seen in carcinoma of the liver?

Dr. Scheff: Yes, if the greater part of the liver is replaced by tumor.

Dr. Alexander: How do you explain the ascites?

Dr. Scheff: It might be the result of thrombotic occlusion of the portal vein or metastases to the peritoneum.

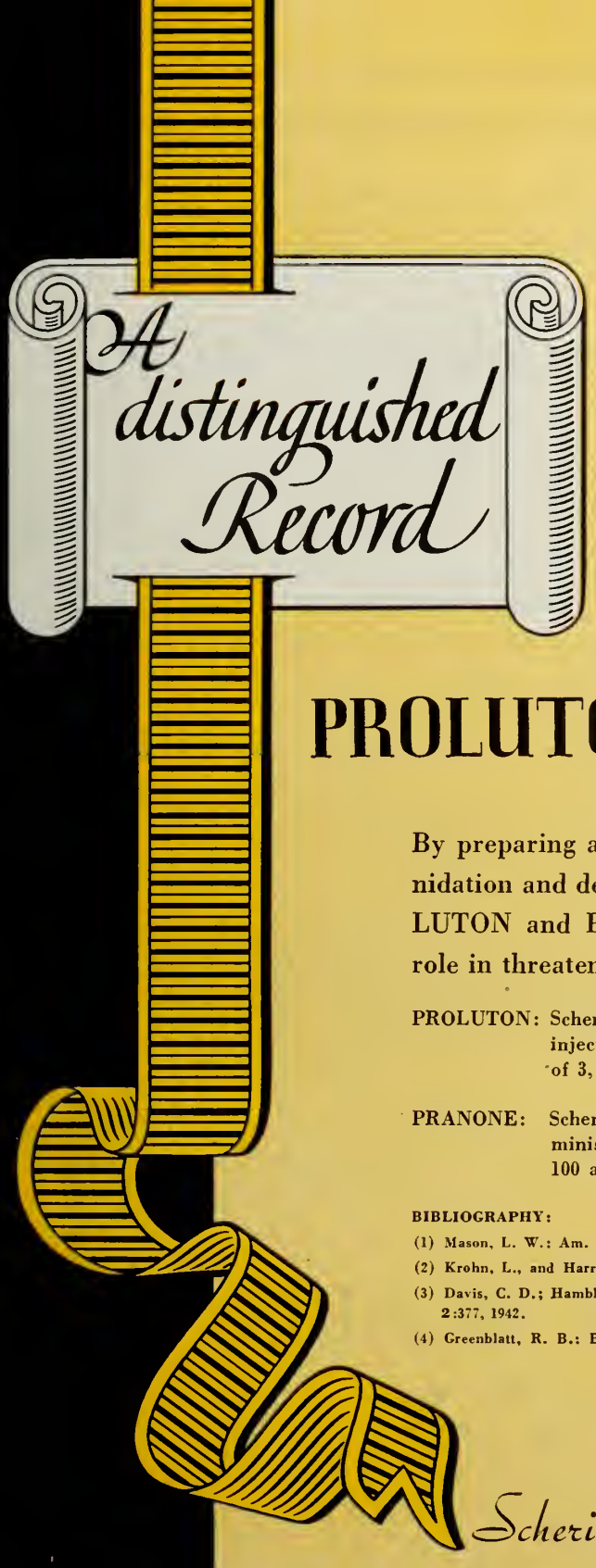
Dr. Alexander: Yes, both of those are logical. I would suggest in addition thrombotic occlusion of the inferior vena cava as a cause of the ascites. Is the anemia consistent with carcinoma of the liver?

Dr. Scheff: Yes, I think it is. On the other hand, he may also have had cirrhosis which is associated not infrequently with anemia.

Dr. Alexander: How often does anemia occur in patients with cirrhosis?

Dr. Reinhard: It is a not uncommon sign. However, it is usually normocytic normochromic. Occasionally it is macrocytic and rarely it is hypochromic microcytic.

Dr. Alexander: If we postulate that he has cir-



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(4) Greenblatt, R. B.: Bull. Univ. Hosp., Georgia 3:1, 1941.

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* *Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154*
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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rhosis, we must also postulate that the carcinoma is primary.

DR. SCHEFF: Yes, that is true.

DR. ALEXANDER: What is the incidence of the association of cirrhosis and carcinoma?

DR. ROBERT MOORE: In primary carcinoma of the liver-cell type, cirrhosis is found in about 90 per cent while with the bile duct type the comparable figure is about 50 per cent.

DR. ALEXANDER: Is fever consistent?

DR. SCHEFF: Fever is a common sign of carcinoma of the liver.

DR. ALEXANDER: This patient lost only ten pounds in weight during the last year. Does that fit with carcinoma of the liver?

DR. SCHEFF: It is certainly not inconsistent.

DR. ALEXANDER: Yes. There appears to be a remarkable difference between secondary and primary carcinoma of the liver. With secondary carcinoma there is usually excessive loss of weight while in primary carcinoma it is minimal. This patient had symptoms for sixteen months. Is that the usual course in primary carcinoma of the liver?

DR. WOOD: He may have had cirrhosis first and later developed carcinoma.

DR. ALEXANDER: I would question how much cirrhosis he had inasmuch as the cephalin cholesterol flocculation test was negative.

DR. SCHEFF: Perhaps he had esophageal varices with slow loss of blood.

DR. ALEXANDER: According to Lichtman, the average duration of life with carcinoma of the liver is 4.2 months from the onset to death.

DR. GURNEY CLARK: Why do you date the illness from sixteen months before death? He may well have had some other disease at that time and later have developed the disease from which he died. In December, about six months before death, he was seen at Vanderbilt Hospital and they did not find anything indicative of carcinoma, but only a fever of unknown origin.

DR. ALEXANDER: Are there any champions for the diagnosis of cirrhosis? Apparently there are not. What then?

DR. JOHN SMITH: Abscess of the liver is a possibility.

DR. ALEXANDER: Yes. This patient had an appendectomy in 1942. Is that pertinent?

DR. SCHEFF: The course in this patient does not resemble that usually seen in pylephlebitic abscess of the liver. Prominent signs are ordinarily chills and fever.

DR. ALEXANDER: May there not be a long interval between the appendectomy and the signs pointing to abscess?

DR. SCHEFF: Yes. If he had an abscess, I would favor amebic rather than pyogenic abscess.

DR. ALEXANDER: Pylephlebitic abscesses are multiple and may, therefore, involve a large part of the liver.

DR. SCHEFF: That is true, but I would expect a greater degree of leukocytosis and a marked shift to the left in the differential count, neither of which was present in this patient.

DR. HAROLD BULGER: Sometimes in abscess of the liver there is leukopenia as was shown by Dr. Barr a number of years ago.

DR. ALEXANDER: Are there other suggestions?

DR. BULGER: May he not have a secondary carcinoma of the liver?

DR. ALEXANDER: That is quite possible, but there was no demonstrable primary carcinoma. Radiographic examination of the intestine was negative, and there was no blood in the stool. Further, in an extensive metastic carcinoma of the liver the patient is usually more acutely ill than this man was.

DR. SMITH: Could it be that he had carcinoma of the pancreas with multiple thrombi, such as we have seen in two patients in this hospital in the last four years?

DR. ALEXANDER: Yes, that is possible.

DR. REINHARD: How do you explain the acidosis?

DR. ALEXANDER: You anticipated my question to Dr. Wood.

DR. WOOD: The blood chemical changes in this patient were most peculiar. I believe that they can be explained by thrombotic occlusion of the portal vein plus renal failure. The portal thrombosis would prevent intestinal absorption and cause hypoglycemia; the renal failure would cause the acidosis through retention of inorganic and organic acids. With such renal acidosis one would expect marked azotemia, but since urea is formed in the liver, the relatively low nonprotein nitrogen in this case may well be due to the disturbed liver function. In summary, I believe this man had renal damage and thrombi in his portal vein. Whether the latter were the result of carcinoma or abscess, I do not know.

DR. SMITH: This patient had typhoid fever many years ago. It is well known that a phlebothrombosis of the portal system may develop under these circumstances.

DR. ALEXANDER: Dr. Bulger, what is your explanation of the acidosis?

DR. BULGER: In my experience it is rare to have a disassociation of retention of nonprotein nitrogen and of organic acids.

DR. ALEXANDER: Do you believe that he has renal damage?

DR. BULGER: I doubt it.

DR. WOOD: He may have the hepatorenal syndrome.

DR. BULGER: May I point out that hypoglycemia may be observed in carcinoma of the liver?

DR. WOOD: The acidosis failed to respond to sodium lactate. Lactate is utilized by the liver and the sodium is thereby liberated. We then may postulate that the patient had extensive renal damage during the last days of his life.

DR. ALEXANDER: In summary, this appears to be a case of carcinoma of the liver, probably primary, possibly secondary, with invasion and occlusion of the portal vein.

ANATOMIC DIAGNOSIS*

Bronchopneumonia in the lower lobe of the right lung.

Ascites (600 cc.).

Passive congestion of the liver with central necrosis, hemorrhage and fatty metamorphosis.

Edema of the subcutaneous tissues of the lower part of the trunk and the lower extremities.

Thrombi occluding the inferior vena cava, common iliac, external iliac and a hepatic vein.

Healed infarct in the right kidney.

Metastatic carcinoma in the upper lobe of the left lung.

Invasion of the wall of a hepatic vein by carcinoma.

Carcinoma in and occluding the right renal vein and inferior vena cava, and within the right atrium of the heart.

Renal cell carcinoma of the right kidney.

PATHOLOGIC DISCUSSION

Dr. Robert Moore: In the upper pole of the right kidney there was a large tumor weighing 600 grams. On the cut section the neoplastic tissue was grayish-yellow and there were numerous foci of necrosis and hemorrhage. In other words, there was a typical hypernephroma or renal cell carcinoma. The renal vein on the right side was filled with similar tissue, as was the vena cava up to the right atrium. Extending downward from the region of the renal vein, the vena cava and the iliac veins were filled with a thrombus. The left renal vein also was filled with a thrombus extending downward into the liver. From the vena cava the hepatic veins were filled with thrombi. The portal vein was normal. There were a few metastases in the lungs.

Microscopic study shows anaplastic renal cell carcinoma in the kidney and vena cava. The cells are large and the cytoplasm is dense and eosinophilic. In a metastasis in the lung, the cells take on the more characteristic clear-cell appearance.

In summary, then, this patient had a primary tumor of the right kidney which by direct extension and by propagation brought about occlusion of both renal veins, the inferior vena cava, the iliac veins, and the hepatic veins. In the liver there was advanced chronic passive congestion with complete destruction of one half of the hepatic parenchyma.

As the result of chronic passive congestion, this man did have damage to the liver and to the kidney.

Dr. Wood: This patient was on the ward for more than a month and neither at that time nor this morning was a diagnosis made with any exactness. Under those circumstances, it seems a good idea to reevaluate the evidence and inquire why the diagnosis was missed. Anemia is certainly a common sign of renal cell carcinoma. The patient developed edema of the ankles before swelling of the abdomen was noted. This should have told us that the occlusion was in the inferior vena cava and not in the portal vein. It is well known that renal cell carcinoma is one of the more common causes of obscure fever. The stumbling block in our reasoning was to relate the hepatic disease to the renal disease. The thrombus in the inferior vena cava extending into both the renal and hepatic veins is a logical explanation.

Dr. Alexander: How do you explain the anemia?

Dr. Robert Moore: While this patient was in the hospital the urine was examined four times. There were no red blood cells at any time. It is possible that there was intermittent bleeding. I would also question whether or not the anemia in renal cell carcinoma is entirely caused by loss of blood. There may be some factors similar to that in chronic glomerulonephritis, that is, toxic inhibition of the bone marrow.

* This is not the printer's or the proofreader's error. It is to assist the reader who wants to make up his own mind about the diagnosis but whose curiosity is too consuming.

ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACTS

A REVIEW FOR PHYSICIANS

Issued Monthly by the National Tuberculosis Association.

Vol. XVIII November, 1945 No. 11

The chest X-ray, reinforced and supplemented by a wide and wise choice of other diagnostic aids, has brought us far along the road toward control of human tuberculosis. In this year of 1945 medicine pays its sincere respects to a half century of progress in the employment of an invaluable procedure. It is a happy circumstance that we celebrate at the same time the centennial of Wilhelm Conrad Roentgen's birth.

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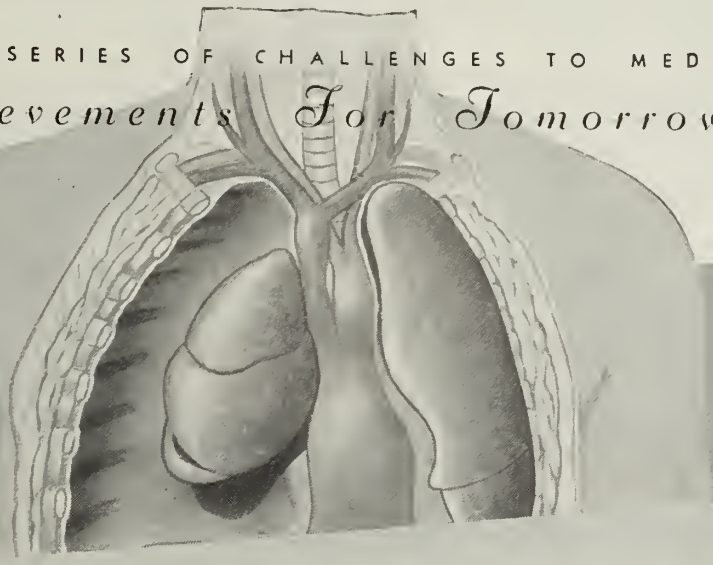
The scientist was Wilhelm Conrad Roentgen, professor of physics at the University of Wurzburg. From his laboratory in 1895 came the announcement that he had discovered a new kind of light.

A New Kind of Ray

The professor was doing some experiments with cathode rays. His apparatus was a Crookes' tube, and an induction coil with a mercury interrupter—standard equipment for laboratories of the day. But, without knowing why, perhaps, Roentgen covered the tube with thick black paper so that no visible light could come through. He darkened the room completely. Then he applied current to the

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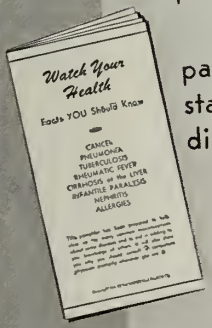
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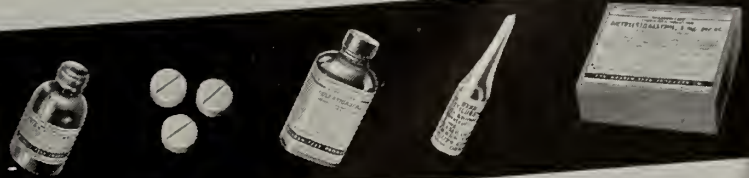


* U. S. Summary of Vital Statistics, 1942.

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tube. To his amazement he saw a few brightly fluorescent crystals shining in the darkness on a table at some distance from the tube. How could this be?

He checked to see that there was no leak in the thick black paper. The fluorescence continued. He knew that the fluorescence was caused by some kind of light. But what kind? Invisible light?

What Roentgen saw had probably been seen by many before him. But he was the first to grasp its true significance, and he went to work at once to investigate and interpret his mysterious light. For days he ate and slept in his laboratory. He did not want to be interrupted in his work of putting his discovery through one test after another. Finally, after eight weeks of intense work, he released a statement "On a New Kind of Ray."

Because of the ray's unknown quality he called it x-ray. But there were many things about it that were known to him. His experiments had shown that the ray could pass through wood, paper, flesh and many other materials through which ordinary light cannot go. He noted that the ray could go through some objects more easily than through others. For example, when he held his hand between the tube and a fluorescent screen he could see the shadow of the bones in outline. Substituting a photographic plate for the screen, he made a photograph of Mrs. Roentgen's hand. The result was the first x-ray picture—a photograph showing bones and a metal ring, but no flesh.

World Reaction

Public announcement of Roentgen's discovery brought instant attention. The world of science and medicine was quick to see the benefits that the new ray would bring to mankind. If Roentgen could use his "light that never was on land or sea" to make such a photograph of his wife's hand, why couldn't it be used to show broken and diseased bones, or even diseased organs of the body?

Magazines of the day carried articles that marvelled at, as well as made fun of, the discovery. News of Roentgen's rays rivalled the headlines of the Boer war in the daily papers. Who was this man whose name was suddenly known to everyone?

The Man

Wilhelm Conrad Roentgen was born in Lennep, Germany, on March 27, 1845. Home, however, was Apeldoorn, in Holland, where his merchant father moved the family when Wilhelm was three years old. His boyhood and early school days in Holland were like that of most boys. In fact, he was not considered a very good or serious student.

His first interest in science came at the Zurich Polytechnical School in Switzerland where he had the good fortune to study with August Kundt, an experimental physicist. Roentgen was preparing to be an engineer, but he spent much of his time in Kundt's laboratory. After he graduated in engineering, he took a degree of doctor of philosophy with a study on gases. As he put it, "I had two diplomas, one as an engineer and the other as a Ph.D. . . . however I could not bring myself to go into engineering. . . . He (Kundt) told me to try physical science. . . . In short, at the age of 24 years, and already practically engaged, I began to experiment and to study physics. . . ."

He was "practically engaged" to Bertha Ludwig whom he married in 1872. The Roentgens then set out on a career which took them to universities in Wurzburg, Strassburg, Hohenheim, Giessen, and back to Wurzburg. At the University of Wurzburg he and Bertha spent their happiest years.

World Acclaim

The happy routine at Wurzburg was, of course, affected by the discovery of what his colleagues now called Roentgen rays. He lectured on his discovery before the Physical Medical Society in Wurzburg early in January 1896. He was asked to give a personal demonstration of the new rays before Kaiser Wilhelm II. Other invitations came for him to speak, but Roentgen made a policy of refusing. Universities began to bid for his services. Finally in 1900 he accepted the call to head the Physical Institute at the University of Munich. A year later he received the Nobel prize for physics —the first year of the award.

For some twenty years until his death in 1923, in Munich, Roentgen saw phenomenal development of his rays. Industry, agriculture, art and countless other fields besides medicine and science fitted it to their uses.

X-ray in Tuberculosis

Benefits of Roentgen's ray are striking in the fight against tuberculosis. Before x-ray the physician had to depend upon sound and touch to find tuberculosis. By the use of x-ray, however, tuberculosis can be discovered in its early stages; treatment can be begun when it will do the most good. Today new and improved x-ray equipment makes low-cost x-ray examination of the chest possible for everyone. Such mass x-raying of apparently healthy people gives new hope for the complete elimination of tuberculosis.

To the zeal and creative genius of a scientist will go much of the credit for this promised conquest of disease. For, although x-ray equipment has undergone notable development, the principle of the x-ray itself remains the same as when laid down by Wilhelm Conrad Roentgen in his laboratory on November 8, 1895.

(The contents of this issue of Tuberculosis Abstracts, adapted for lay distribution, are available in the form of an anniversary "Roentgen" leaflet. If you wish a supply for your patients, please apply to the tuberculosis association in your community.)



THE VICTORY MEETING of the Southern Medical Association will be held under the sponsorship of the Campbell-Kenton County Medical Society of Kentucky in Cincinnati, Ohio, November 12-15. It is a Kentucky meeting. The Southern Medical Association meetings always have been and always will be the essential meetings IN and FOR the South. The Southern as an essential medical organization has carried on without a break during the war—it has not missed a meeting. Now it will celebrate the victory with a great VICTORY MEETING. In its twenty-one sections, two general sessions, six conjoint meetings, and the scientific and technical exhibits, in a streamlined program, one will get the last word in modern, practical, scientific medicine and surgery.

REGARDLESS of what any physician may be interested in, regardless of how general or how limited his interest, there will be at Cincinnati a program to challenge that interest and make it worth-while for him to attend.

ALL MEMBERS of State and County medical societies in the South are cordially invited to attend. And all members of state and county medical societies in the South should be and can be members of the Southern Medical Association. The annual dues of $4.00 include the Southern Medical Journal, a journal valuable to physicians of the South, one that each should have on his reading table.

SOUTHERN MEDICAL ASSOCIATION
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SYPHILIS IN INDUCTEES

Syphilis in Inductees. Analysis of 5,000 Cases. Jacob Zellermayer. J. Ven. Dis. Inform. 26:194-198 (September) 1945.

A study evaluating the preliminary diagnoses of syphilis in a group of 5,000 inductees revealed that 11.4 per cent of these inductees never had syphilis, 10.56 per cent were possibly cured of their infection, 1.24 per cent had primary syphilis, 0.14 per cent secondary, 48.84 per cent early latent and 12.98 per cent complicated syphilis, chiefly cerebrospinal.

Preliminary diagnoses were based on positive serologic tests, history of injection on therapy, history of penile or skin lesions, familial histories of syphilis and miscellaneous other reasons.

In 1,510 inductees in which no evidence of active infection could be found at the time of evaluation, 37.7 per cent were found never to have had syphilis, 35.0 per cent had been adequately treated and were possible cures, and 27.3 per cent had been inadequately treated or treated within the previous six months and were considered possible cases of latent infection.

In 570 men finally evaluated as never having had syphilis, positive serologic tests alone comprised the basis for the preliminary diagnosis of nearly 80 per cent; a history of penile lesions, 16.0 per cent; a history of injection therapy, 1.6 per cent; miscellaneous other reasons, 2.8 per cent, such as a doubtful positive Romberg, the presence or history of skin lesions or adenitis and familial histories of syphilis.

This group, found never to have had syphilis, is an excellent illustration of the necessity for careful diagnostic work in the field of syphilotherapy. It constitutes 11.4 per cent of the entire series, and contains 570 men who might well have been started on an arduous course of treatment in the absence of further investigation. It also raises considerable doubt concerning 167 men in the cured group who had been treated on the basis of positive serologic test alone, and 149 in the latent syphilis group who were clinically and serologically negative but had had inadequate treatment. All of these facts emphasize the need for great care in establishing the diagnosis of syphilis.

Of the 528 men (10.56 per cent) considered possible cures, 167 were originally diagnosed on the basis of serologic tests alone, so many of them may never have had syphilis. On the other hand, there were 412 men clinically and serologically negative who were classed as latent syphilis either because they had received inadequate treatment or because they had been receiving treatment within six months prior to evaluation. Thus there was a total of 940 men, 18.8 per cent of the entire series, who, if their original diagnoses were correct, may have been cured; 84.1 per cent of these had had more than twenty arsenical injections. Nearly half of the possibly cured cases had received regular treatment compared with slightly more than one third of the latent cases. Even when those who had

received less than twenty arsenical injections are taken out of the latent group, the remainder show a much lower average number of injections than do the possible cures. It is apparent that both regularity and amount of treatment are potent factors in bringing about serologic reversals.

No previous treatment had been given to 1,614 inductees with latent syphilis. This group constitutes 58.2 per cent of the 2,772 seropositive latent cases. In other words, well over half of this group found to have positive blood tests but no other signs of syphilis were previously untreated and unknown cases. This illustrates the value of the serologic survey in finding cases of syphilis, provided caution is used and too much reliance is not placed on the results of a single test.

BOOK REVIEW

THE BIOLOGICAL BASIS OF INDIVIDUALITY. By Leo Loeb, Professor Emeritus of Pathology, Washington University School of Medicine, St. Louis. Springfield, Ill.: Charles C. Thomas, Publisher. 1945. Price $10.50.

This is a large volume of some 700 pages, well written and in many places highly technical. It might be classed as both a biologic and a philosophic work. The author starts out defining individuality as a rather general term.

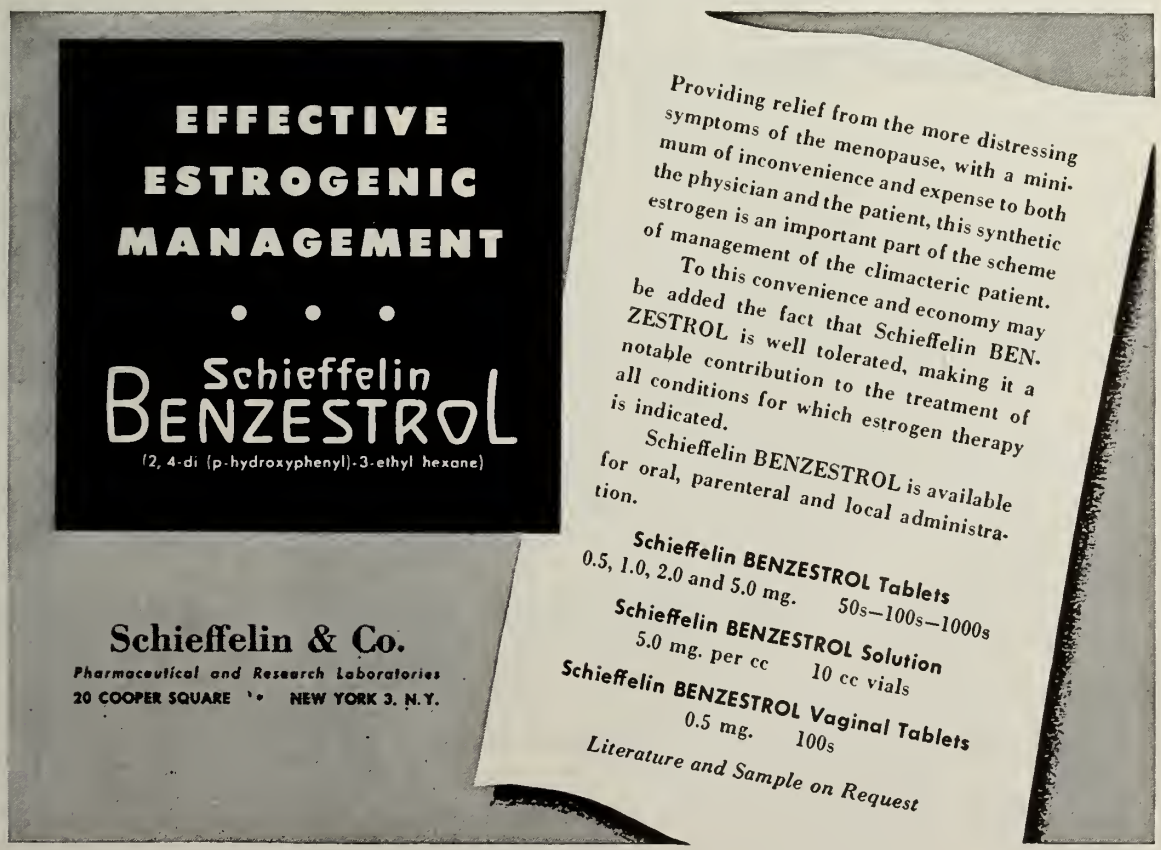
Dr. Loeb, having been a well known teacher of pathology for a great many years in Washington University, naturally discusses soundly various tissues, growth, cultivation and transplantation. He starts out with tissue growth in some of the lowest organisms and gradually works up into the bird dominion, lower forms of mammals and eventually carries his problems to the most highly developed animal, namely, man.

One large chapter is devoted to tissue transplantations and clearly shows the comparative reactions between host and transplants—that in the lowest form of life, there is always some reaction even though less than when widely heterogeneous organisms are used in the experimental work. He dwells considerably on the leukocyte reactions. He divides his transplants into autogenous and homiogeneous. In subsequent chapters he demonstrates the different reactions on account of the individuality of each organism.

One chapter reports on experiments involving heredity. For instance he cites 106 consecutive matings of brothers and sisters. Even with this large number, as a final result individuality persists. Thus he was never able to show any strictly homozygous offspring. The same results were reported for guinea pigs and higher animals. Many pages are devoted to tumors and their transplantation. The growth of neoplasms and differential individualities are discussed in minutiae.

Finally, there is discussed the evoluton of organ differentials as it applies to man. He labels the last part "The Psychical-Social Individuality." He classifies man as living in an authropocentric and egocentric world, and that there may be conflicts; that life is a struggle for psychical and material gains. He states that the physiologic is awareness and, namely, the body; that psychical is the sense or the soul.

The book can be recommended for any physician interested in physiologic and pathologic experimental work, and philosophic deductions. A. L. S.



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NOVEMBER, 1945

EDITORIALS

ANNUAL SESSION

Dr. J. W. Thompson, St. Louis, has been appointed Chairman of the General Committee on Arrangements for the 1946 Annual Session, which will be held March 24, 25 and 26, at the Jefferson Hotel, St. Louis. Other members of the committee are Dr. H. B. Goodrich, Hannibal, and Dr. R. B. Denny, Creve Coeur.

The program for the session is well underway and plans are developing for special features for the meeting. Additional facilities have been set up to take care of the commercial exhibits of the companies which have made reservation to exhibit their products at the session.

The meeting is scheduled for approximately a month earlier than it has been held for several years because of the number of conventions that are being held next spring.

CANCER MORTALITY

The mortality from cancer, particularly among women, is beginning to come under control. This is indicated by the experience among the many millions of industrial policyholders of the Metropolitan Life Insurance Company and is confirmed by other sources. In the last decade, for example, the age-adjusted death rate from cancer among insured white females dropped 11 per cent at ages 1 to 74 years; virtually every important age group shared in the improvement. The current mortality from the disease among women in the broad age range 35 to 64 is the lowest in a third of a century, having dropped by one fifth during that period.

Among white male policyholders, too, a favorable indication is noted. The distinctly upward trend which had been manifested for many years has been stemmed. In fact, during the last decade, at no age beyond 25 years has the cancer death rate among these men shown any increase, and at some age periods the mortality has tended downward recently.

That the organized movement to control cancer is bearing fruit is evident from the fact that people, and more especially women, are seeking diagnosis and treatment earlier in the course of the disease, when the chances of cure are best. For example, among the patients at the cancer clinics in Massachusetts, the average delay between first symptoms and visit to physician was reduced from somewhat more than six months in the period 1927 to 1935, to 3.3 months in 1943.

CLINICS AT THE ELLIS FISCHEL STATE CANCER HOSPITAL

During the little more than five years of its existence, the Ellis Fischel State Cancer Hospital has been accumulating highly interesting groups of patients in its follow-up clinics. Members of the Association have always been invited to attend these clinics but wartime restrictions on time and travel have made this difficult. Looking forward to the time when physician again may have opportunity to study such clinical material, the follow-up appointments of the hospital have been arranged so that on a given day a fair cross section of any one tumor or group of tumors may be covered in its several aspects.

Each month THE JOURNAL will publish the clinic schedules of the hospital. The medical staff of the hospital invites members of the Association to be its guests at such times.

The schedule for November and December follow:

November 7: Skin.
November 14: Head and Neck.
November 21: Skin.
November 28: Gastrointestinal.
December 5: Skin and Melanomas.
December 12: Head and Nack.
December 19: Skin.
December 26: Gastrointestinal.

NEWS NOTES

Dr. C. P. Rhoads, New York, Director of the Memorial Hospital for Cancer and Allied Diseases, will be a guest speaker at the St. Louis Medical Society on November 20 at 8:30 p. m. His subject will be "Nutritional Aspects of the Cancer Problem."

Colonel Howard A. Rusk, St. Louis, has been appointed consultant on Physical Rehabilitation for the Baruch Committee.

Lt. Col. Franklin E. Walton, St. Louis, Chief, Surgical Service, Hines General Hospital, has been promoted to Colonel.

Captain Irwin S. Brown, Kansas City, has been awarded the Bronze Star for meritorious service while serving with a corps evacuation hospital in Okinawa.

Dr. Charles A. Brasher, Mt. Vernon, has passed the examination for Fellowship in the American College of Chest Physicians.

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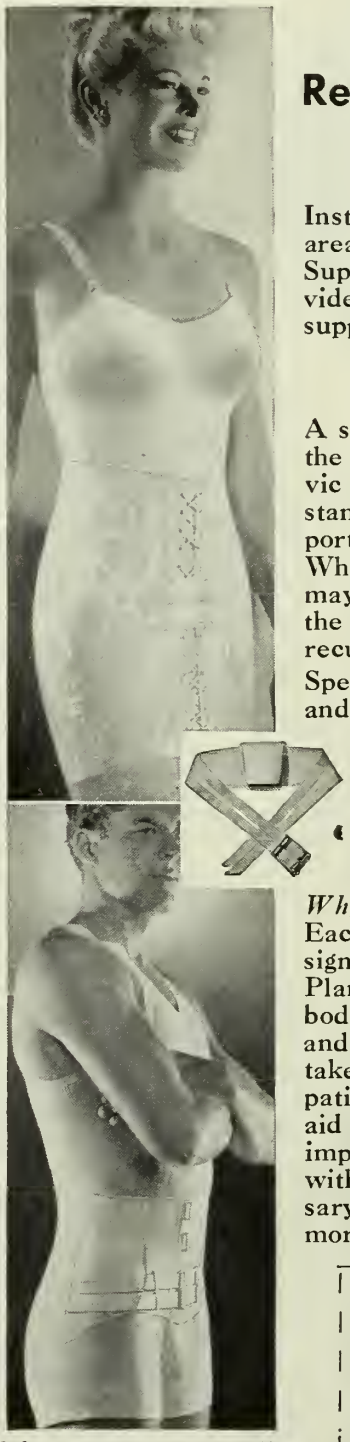
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Dr. A. Link Koven, Jefferson City, Chief of the Industrial Hygiene Division of the State Board of Health, spoke before the Franklin County Medical Society on September 21 on "Industrial Medicine and Its Potential Importance to Franklin County." An intense survey of all the industries in Franklin County will be made and a report of the industrial medical problems will be made to the Franklin County Medical Society.

Drs. A. N. Altringer and A. Morris Ginsberg, Kansas City, spoke at a Health and Child Development Institute at Kansas City, October 19. Dr. Altringer spoke on "Sinus Infections" and Dr. Ginsberg on "The Child With a Crippled Heart."

Lt. Col. Oscar P. Hampton, St. Louis, has been decorated with the Legion of Merit for outstanding service as consultant in orthopedic surgery in the Mediterranean theater of war.

Dr. Irvine H. Page, Indianapolis, will be the guest of the Jackson County Health Forum on November 21 and will speak on "High Blood Pressure and Your Kidneys."

Major Samuel S. Kirkland, Springfield, has been promoted from Major to Lieutenant Colonel.

Dr. Robert Elman, St. Louis, has been given the Samuel D. Gross award for pioneer work in the use of amino acids through injection, which has saved the lives of thousands of war starved victims in Europe. The $1,500 award is made by the Philadelphia Academy of Surgery every five years for an original contribution to surgical research or practices.

Dr. E. E. Glenn, Springfield, was elected president of the Missouri Chapter of the American Trudeau Society which met in St. Louis, September 21. Dr. H. L. Mantz, Kansas City, was elected president-elect, and Dr. D. L. Coffman, Leeds, was elected secretary-treasurer. The following program was presented at the meeting: "Sulfa Drug Pneumonitis," Dr. Henry Pinkerton, St. Louis; "Histoplasmosis and Multiple Pulmonary Calcifications," Dr. H. L. Mantz, Kansas City; "A Roentgen-Ray Classification of Pneumonia With Special Reference to the Tissues Involved," Dr. LeRoy Sante, St. Louis.

Lt. Col. Roy V. Boedeker, St. Louis, recently was awarded the Bronze Star for meritorious achievement in connection with military operations in the Mediterranean theater of operations from October 25, 1943, to March 11, 1945.

Four St. Louis physicians were in the unit which built the first United States Navy hospital in the South Pacific where thousands of sick and wounded from the Solomon Islands were attended. The



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On Antibody Formation

It is well known that severely underfed patients with nutritional edema are excessively susceptible to infections, that infections superimposed on wasting diseases or marasmic states show a rapid, frequently fatal course. In the light of recent findings, both of these facts—heretofore but poorly understood—may well be on the way to conclusive explanation.*

Evidence is rapidly accumulating that antibodies, our chief weapon against infection, are modified proteins of the globulin type. During active immunization, antibody formation presents a continuous process, requiring its share of amino acids.

Experimentally it has been demonstrated that induced hypoproteinemia reduces the capacity to produce agglutinins, precipitins, hemolysins. Adequate protein intake thus gains increasing significance as an essential factor in the resistance to infectious disease.

Among the protein foods of man meat ranks high, not only because of the percentage of proteins contained, but principally because its proteins are of high quality, able to satisfy every protein need.

*Cannon, P. J.: J. Am. Diet. Assn. 20:77 (1944)

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physicians were Captain Alphonse McMahon, Commander Jerome I. Simon, Commander Henry C. Allen and Commander James M. Macnish. The hospital was located at Efate, New Hebrides. The mortality rate for the hospital during its first year of operation was 0.3 and 65 per cent of the fighting men treated were returned to the lines.

Dr. H. L. Mantz, Kansas City, was elected president of the Missouri Tuberculosis Association at a meeting in St. Louis on September 21.

Dr. W. Merritt Ketcham, Kansas City, will speak on "Asthma; Presenting a New Treatment" at a meeting of the Southern Chapter of the American College of Chest Physicians in Cincinnati on November 11 and 12.

Lt. Col. Leslie D. Cassidy, St. Louis, has been decorated with the Legion of Merit for outstanding services as chief medical officer of the 70th General Hospital in North Africa and Italy.

The following program will be presented at the meeting of the St. Louis Surgical Society at St. Anthony's Hospital, November 21, at 8:30 p. m.: "Report of a Case of Prostatic Calculi," Dr. Neil S. Moore; "Primary Carcinoma of the Lung," Dr. Paul C. Schnoebelen; "Report of a Case of Krukenbergs Tumor—Possibly Primary in the Ovary," Dr. J. L. Gross; "Ureteral Transplantation for Bladder Exstrophy," Dr. Emmet H. Rund; "Trends in Anesthesia," Dr. John Goebel; "Report of a Case of Volvulus of the Stomach," Dr. Nicholas Schneider.

PHYSICIANS RETURNED FROM MILITARY SERVICE

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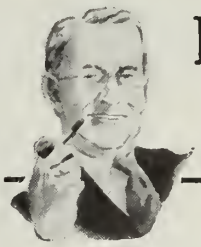
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Morgan, David B., M.D., Kansas City.
Myers, Robert M., M.D., Kansas City.
Stockwell, Arthur L., M.D., Kansas City.

THE JOURNAL will announce physicians returning from military service as soon as the information is obtained. It will be appreciated if physicians will assist by giving this information to THE JOURNAL, 623 Missouri Building, St. Louis 3, or telephone Newstead 0404.

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From where I sit, music can help to make the whole world kin. Maybe we ought to have a lot more of it . . . informal sings around the fire, and in the home. And it's sure true that a mellow glass of beer just naturally goes with that kind of music.

Joe Marsh

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LEGISLATION

Letters from Congressmen in answer to a letter asking their attitude toward the Wagner-Murray-Dingell bills were published in the October issue of THE JOURNAL. The two following letters were received too late to publish with the other letters.

"Dear Mr. O'Brien:

"Please pardon my delay in acknowledging receipt of your letter of August 6, 1945, conveying to me your views relative to Senate Bill 1050. I appreciate receiving the benefit of your views concerning this proposed legislation. I shall give this bill serious study and consideration before it is voted upon in the Senate.

"Yours very truly,
(Signed) "FORREST C. DONNELL."

"Dear Mr. O'Brien:

"I had the pleasure about two years ago to speak before the St. Louis Medical Society. At that time I made my position very clear that I was opposed to State Medicine or Socialized Medicine as proposed by the Murray-Wagner-Dingell Bill, or in any other similar form.

"I am sorry that this reply is not getting to you at an earlier date, but my absence from Washington and the enormous volume of mail has prevented an earlier reply.

"You may be sure of my intense interest in this subject.

Sincerely yours,
(Signed) "WALTER C. PLOESER."

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Review of Neurological Surgery and a Glimpse Into Its Future.

This new book is presented in the hope that it will benefit all engaged in neurosurgery. It covers pre and postoperative care of neurosurgical cases—those innumerable small maneuvers before, during and after operation. Particular emphasis is placed on postoperative care.

Beginning with a chapter on preoperative examination and care, the book takes up in natural order the operating room and its equipment and anesthesia, old and modern methods with detail concerning avertin. Then it gives a general discussion of neurosurgical methods, followed by case histories of cranial operations (with the procedures employed.) Spinal and peripheral nerve operations are given a special section. Closure of wounds is taken up in a separate chapter. Then postoperative care is discussed. Finally is given a review of neurological surgery with a glimpse into its future.

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Dr. .....

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toward effecting the early release of Medical Department personnel who are eligible for separation from the service under the announced policy.

At the same time he urged that all Medical Department personnel occupying key positions and who are eligible for separation under the present criteria volunteer to continue on active duty to assist in maintaining the present high standards of medical care if no replacement is immediately available. It is contemplated that a period of six months' duty will be sufficient time to allow for the arrival of a replacement or for training an officer to take over duties of key positions and thus allow all officers eligible for release to be returned to civilian life.

General Kirk requested that commanding officers make every effort to obtain replacements for Medical Department personnel eligible for release in order that those officers might be returned to civil life at the earliest possible moment.

Under the announced Medical Department demobilization policy, Medical and Dental Corps officers are eligible for release providing they meet any one of the following criteria:

a. Adjusted service score of 80 or above.

b. 48 years of age to the nearest birthday or above.

c. Entry on active duty prior to Pearl Harbor excepting critical specialists qualified in eye, ear, nose and throat, plastic surgery, orthopedic surgery, neuropsychiatry or laboratory clinicians. Officers qualified in these specialties are eligible for release if they entered on active duty prior to January 1, 1941, or if they meet the criteria on points or age.

This revised policy on separation is expected to return 13,000 physicians, 3,500 dentists, 25,000 nurses and a large number of other Medical Department officers to civilian life by the first of the year.

It will be necessary to retain a large number of low score men in the service for replacement for overseas men having high ASR scores. Other low score men must of necessity be retained in the service to carry on the necessary activities of the Medical Department in this country and in theaters where American troops are operating.

It is intended that no one eligible for release will be held in the Army because there are men with higher scores overseas who have not been returned home. Eligible men will be discharged as rapidly as they can be processed for separation.

No enlisted personnel with a sufficient number of critical points will be kept because of "military necessity" except those very few men classified in one of three essential technical skills. These are: Orthopedic mechanics, electroencephalographers who operate electrocardiac equipment and radio transmitter attendants. The latter is not in the Medical Department.

Policy on Overseas Assignment

Another release from the office of the Surgeon General gives the policy of overseas assignment as follows:

Only Army doctors who have not yet been overseas will be given assignments in foreign theaters under the Medical Department policy, Major General Norman T. Kirk, Surgeon General of the Army, has announced.

The same plan will be followed with reference to dentists, nurses and other officers of the Medical Department, General Kirk said.

There will also be an age limit for any officer who is to be given an overseas assignment, ranging from 40 years as the maximum for doctors and dentists down to 30 years for nurses, dietitians and physical therapists.

Any officer who is sent abroad for duty in the Medical Department must be under the age shown in the



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table and must have a point score below that listed in the following:

Corps	ASR	Age
MC	45	40
DC	45	40
SnC	45	35
VC	30	35
MAC	30	35
ANC	12	30
MDD, PT	18	30

This revised policy on overseas assignments is part of the new separation program just announced by which more than 13,000 doctors, 25,000 nurses and 3,500 dentists will be released from military service by the end of the year.

BOOK REVIEW

Textbook of Histology. Functional Significance of Cells and Intercellular Substances. By E. V. Cowdry, Professor of Anatomy, The School of Medicine, Washington University and Director of Research, The Barnard Free Skin and Cancer Hospital, St. Louis, Mo. Third Edition, Thoroughly Revised. Illustrated. Philadelphia: Lea & Febiger. 1944. Price $7.00.

Dr. Cowdry's reputation is based upon his profound knowledge of cytology and his broad philosophic attitude of mind in respect to medicine as a science. Knowing this background, one would expect in his book something different, something more valuable, something of more absorbing interest than is commonly found in books on histology. The reviewer expected much and was in no way disappointed in reading this third edition of Cowdry's well-known book on histology. The objective of this work is obviously a closer focussing of attention on the correlation of form and functin by stressing the dynamics of the body in action.

Dr. Cowdry has literally transfused the dry subject of histology with his spirit of adventure into the domain of reason and his characteristic aptitude of being able to awaken in the minds of his audience an enthusiastic appreciation of his undertaking. One need not be a special devotee of morphology to appreciate this, his latest contribution.

He designates his initial chapters "Blood the Principal Intergrator." The subject is considered from three standpoints, the white cells, the red cells and other formed elements and bone marrow. These chapters are delightfully informative on the latest views of blood, that "ganz besondere flussigkeit." Then follows his chapter on the mechanism of the circulation, then "Drainage into Blood" (the lymphatic system and special lymphatic organs). A marvelous chapter is that entitled, "Chemical Broadcasting via the Blood." Here one finds an explanation of the endocrine system and the workings of the endocrine system as well as a histologic description. He compares the endocrine system to a broadcasting layout, viz., with the tuning in of receivers and the resulting action. The endocrine glands are the stations with the hormones serving as penetrating radio waves. His conception of the building up of sufficient material for broadcasting effective concentrations in all directions gives one a new and appropriate understanding of this entire question.

The technical details of histologic structures throughout the book are fulsome and elucidative. The sequential arrangement is original and logical. The illustrations are representative, 317 in all, with 13 in colors.

The addition of this book to the library of all physicians as well as those technically concerned with the study and teaching of histology is urged. R. B. H. G.

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During the past ten years the cosmetic industry has nearly doubled its annual volume of sales, thereby creating approximately twice as many jobs in its own field and twice as many jobs in the various industries that supply its raw materials, containers, manufacturing and office equipment, etc. Perhaps even more significant is the fact that twice as many people enjoy the use of its products, which in itself reflects a better standard of living.

It is estimated that the total cosmetic sales for 1945 will be close to $600,000,000; and it is generally felt by persons in the industry who are in close touch with its trends that this figure, large as it may seem, will probably be doubled within the next few years.

The growth of Luzier's, Incorporated, which reflects the growth of hundreds of individual sales units all over the country, can be measured by the growth of the industry of which it is a part. We look ahead with confidence to a steady expansion of our service, to provide many times our present number of patrons with fine cosmetics and perfumes selected to suit their individual requirements and preferences, and to provide an opportunity for many times our present number of distributors to build a worth-while business of their own.

A card addressed to Luzier's, Incorporated, 3210-20 Gillham Plaza, Kansas City 3, Missouri, will put you in touch with a distributor of our products whose pleasure it will be to serve your cosmetic requirements or to explain the qualifications necessary for you to engage in a business of your own, distributing our products.

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KANSAS CITY, MISSOURI

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

THE PRESIDENT'S MESSAGE

This is the time to put on your membership drive and a campaign to organize new counties. From your county's Secretary get the names of all eligible doctors' wives. Send a written invitation to them inviting them to your meeting. Do you know a doctor's wife in an unorganized county who would like to become a member-at-large? It is only $1.25. They will receive the *State Bulletin* and all material sent out by the state.

We have set a goal of 1,000 members. This should be easy to reach. Last year we had 895 members. Only 22 counties out of 114 counties in Missouri are organized. Each director, all county officers, and chairmen should make it her responsibility to bring at least two members into the Auxiliary. Let's all get behind Mrs. August Werner, our new First Vice President and Organization Chairman and show her that it can be done.

On October 1 I had the privilege of being entertained by the Cape Girardeau Auxiliary. They are expanding this year holding eight meetings instead of four. The next day I went to Perryville and met with the *Hygeia* prize winning Perry Auxiliary, which did have seven members. There are only three members left to carry on until the others come home from war. Their fine work is a shining example to all of us. From there, Mrs. O. A. Carron drove me to quaint Ste. Genevieve, the oldest town in Missouri. We called on Mrs. C. J. Clapsaddle, one of our members-at-large, and she has promised to act as chairman to organize Ste. Genevieve County. On Wednesday, I went to Kennett, and met with five ladies who promise to organize Dunklin County. They elected Mrs. Paul Baldwin as chairman and plan their meeting for October 24 when others from out in the county will be present and they can elect officers.

It was a thrill to me to see how eager these women in Southern Missouri are to get started and to learn more about the work of the Auxiliary.

Dr. Paul Baldwin and Dr. E. C. Bohrer, our new Advisers, are working with us to help us organize these Southern Counties, New Madrid, Scott, Butler, Madison, Wright, Douglas, Oregon, Howell and Texas.

After you have enlisted your first member, it gets in your blood and you go forth with renewed energy to get others. Its the personal contact that counts. Try and see what you can do.

The Woman's Auxiliary to the Southern Medical Association will be held in Cincinnati, Ohio, November 12 to 15. Did you know that our own Mrs. R. C. Haynes, Marshall, is Recording Secretary? Lets all get together and have a Missouri table at the luncheon on Tuesday.

The dates for the Annual Session of the Missouri State Medical Association have been set for March 24, 25 and 26. The session will be held at the Jefferson Hotel, St. Louis. Please mark a big red circle around that date on your calendar because the St. Louis Auxiliary are making many interesting plans and you will miss out on a fine meeting if you are not there.

MRS. HARRY M. GILKEY.

The St. Louis Auxiliary has been honored by receiving a citation from the United States Treasury Department for patriotic cooperation rendered in behalf of the War Finance Program. The president, Mrs. F. G. Pernoud, and also the War Service Chairman, Mrs. Carl J. Althaus, as well as all members are to be congratulated for their splendid work in putting over the 7th War Loan Drive.

HYGEIA

It is my pleasure to announce that our Auxiliary is again taking an active part in the annual *Hygeia* contest which opened September 1, 1945, and will close January 31, 1946. I earnestly urge every member of the Auxiliary to take an active part in this contest.

We were all proud to learn that Missouri took third place in the national *Hygeia* contest for 1944, Perry, Cass and Buchanan counties each winning money prizes. We must all work hard to achieve a better record for the new year. Missouri should have her name on the bronze plaque that Dr. Hermann Kretschmer is giving to the National Auxiliary for the prize winning states.

To those of you who have participated in the contest in previous years, please note that the membership in each group has been changed. Become well acquainted with the rules if you wish to win a prize.

This year there is a special offer to physicians and their families during the months of December and January of 50 per cent discount on all subscriptions. These reductions are in the special Christmas rates effective December 1, 1945.

Did you know that the Missouri State Medical Association passed a resolution endorsing *Hygeia* at its Annual Meeting in St. Louis in 1942? Other state medical associations which have adopted resolutions are Michigan, Mississippi, Ohio and Illinois.

Selling *Hygeia* is a distinct form of public welfare service and we recognize the importance of general health enlightenment. The public is seeking reliable health information and they will find it in *Hygeia*. Keep *Hygeia* in circulation to insure a healthy nation.

Our *Hygeia* program in Missouri will be to distribute *Hygeia* to as many homes and public places as possible. The following are suggested:

1. In the home of every Auxiliary member.
2. In the homes of our friends and relatives as appropriate gifts of Auxiliary members.
3. In the reception rooms of every physician and dentist.
4. In every reading room of community centers, hospitals, high schools, colleges and institutions.
5. In the hands of every instructor of home nursing, and every member of the visiting nurses association as a guide in health instruction.
6. In every U.S.O. center and military encampment recreation center.
7. In every base hospital library.
8. In Y.W.C.A., Y.M.C.A., and Red Cross reading rooms.
9. In reception rooms of beauty parlors.

MRS. O. A. CARRON, Chairman.

Auxiliary Hygeia Contest for 1945-46

The sum of $400.00 will be given by *Hygeia* in Cash Prizes to the Auxiliaries securing the largest number of subscription credits to *Hygeia* during the Contest beginning September 1, 1945, and ending January 31, 1946.

The $400.00 will be divided into Cash Prizes as follows:

County Prizes

Group 1. Auxiliaries with a membership of 1 to 18: 1st prize $40.00, 2nd prize $25.00, 3rd prize $15.00.

Group 2. Auxiliaries with a membership of 19 to 35: 1st prize $40.00, 2nd prize $25.00, 3rd prize $15.00.

Group 3. Auxiliaries with a membership of 36 to 99: 1st prize $40.00, 2nd prize $25.00, 3rd prize $15.00.

Group 4. Auxiliaries with a membership of 100 or over: 1st prize $40.00, 2nd prize $25.00, 3rd prize $15.00.

State Prizes

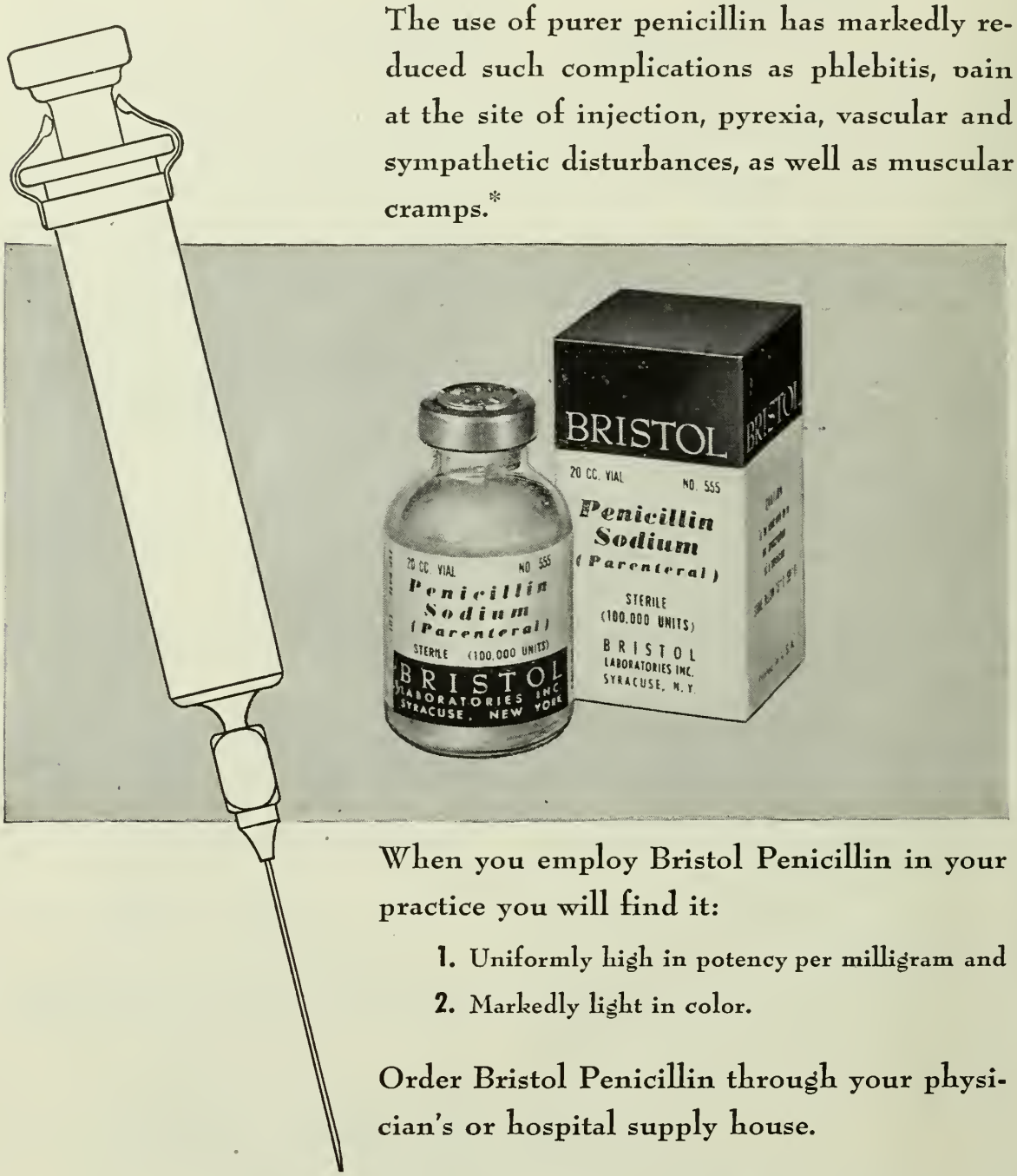
Three cash prizes will be given to State Auxiliaries who have obtained the greatest number of subscription credits over their quota: 1st prize $40.00, 2nd prize $25.00, 3rd prize $15.00.

Contest Rules

Prizes are based on your group quota and the number of subscription credits obtained. Your quota is the number of paid-up members in your Auxiliary at the close of your previous fiscal year which is normally about April 30. This arrangement gives the Auxiliary with a small membership an equal chance with the larger ones in their particular group. For example: an Auxiliary that has twenty members

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*Keys, J.E.L.: Penicillin in Ophthalmology, J.A.M.A. 126: 610 (Nov. 4) 1944.

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and secures twenty subscriptions would have reached its quota and have a rating of 100 per cent. Further, if an Auxiliary has only twenty members and secures eighty subscriptions it would have a rating of 400 per cent and win over an Auxiliary that has thirty members and secures ninety subscriptions with a rating of 300 per cent.

New or renewals on a one-year subscription will count as one credit; a two-year subscription as two credits; a three-year subscription as three credits; a six-month subscription as one half credit. In the event of a tie, the county sending the largest number of two-year and three-year subscriptions will be awarded the prize. Unpaid subscriptions will not be counted in the contest unless payment is received before the close of the contest, January 31, 1946.

Restrictions: No county will be given a cash prize nor special recognition unless its Auxiliary has secured at least twenty-five subscription credits. No county or state auxiliary will be given a cash prize unless it has reached its quota. No county auxiliary will be given credit for subscriptions taken from members at large or other county auxiliaries.

Time limit: The time of the contest covers the period from September 1, 1945, to January 31, 1946. All orders in envelopes postmarked on and previous to January 31, 1946, will be counted in the contest. Mail in contest orders to *Hygeia* Department, 535 North Dearborn Street, Chicago 10, Illinois. Use the order blanks whenever possible. Send original white copy to us and keep the carbon copy for your records. Please write or print plainly.

Hygeia Rates

	Rate	*Comm.*	*Remit to Hygeia*
One-year subscription	$2.50	$1.25	$1.25
Two-year subscription	4.00	1.50	2.50
Three-year subscription	6.00	2.25	3.75
Nine-month subscription	1.88	.94	.94
Six-month subscription	1.25	.625	.625

Special Group Subscription Rates for Hygeia to Schools

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3 to 9 subscriptions	$2.25 each	$1.00	Comm. each
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25 to 49 "	1.90 "	.65	" "
50 or more "	1.75 "	.50	" "
9 months—			
3 to 9 subscriptions	$1.71 each	$ .775	Comm. each
10 to 24 "	1.575 "	.64	" "
25 to 49 "	1.44 "	.50	" "
50 or more "	1.35 "	.415	" "
6 months—			
3 to 9 subscriptions	$1.14 each	$ .50	Comm. each
10 to 24 "	1.05 "	.425	" "
25 to 49 "	.96 "	.325	" "
50 or more "	.90 "	.25	" "

These rates are applicable only when a number of subscriptions are financed by one person or institution. They do not apply where a single subscription is placed by one individual.

Special Rates for Physicians During the Months of December and January

During the months of December and January you may accept subscriptions from physicians at a 50 per cent reduction such as: $1.25 for one-year; $2.00 for two-years; $3.00 for three-years. These special rates will also apply to gift subscriptions: Two 1-year subscriptions $2.00; three 1-year subscriptions $3.00; and each additional one-year subscription $1.00. No commission can be allowed on these orders, but credit will be given to your Auxiliary.

Note: Should any of your Auxiliary members call on a physician who has entered a subscription, report the date payment was made to this office and credit will be given your Auxiliary, provided the order is received or had been received within thirty days before or after your request reaches us. Please be sure that an order has been entered before sending the name to this office.

Special Christmas Rates Effective December 1, 1945

To dentists, nurses, the public, etc., who wish to place gift subscriptions, the following rates should be quoted:

	Pub. Price	*Your Comm.*	*Remit to Hygeia*	*Credit Allowed*
1 gift subscription	$2.50	$1.25	$1,25	1 credit
2 gift subscriptions	4.00	1.50	2.50	2 credits
Each additional gift subscription	2.00	.75	1.25	1 credit

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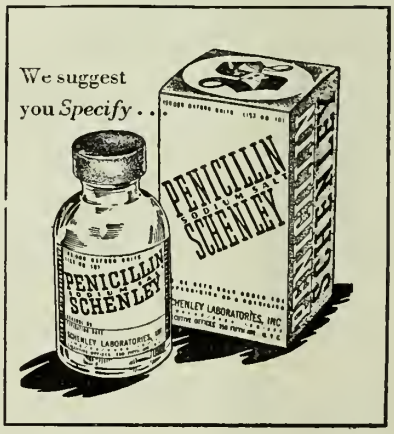


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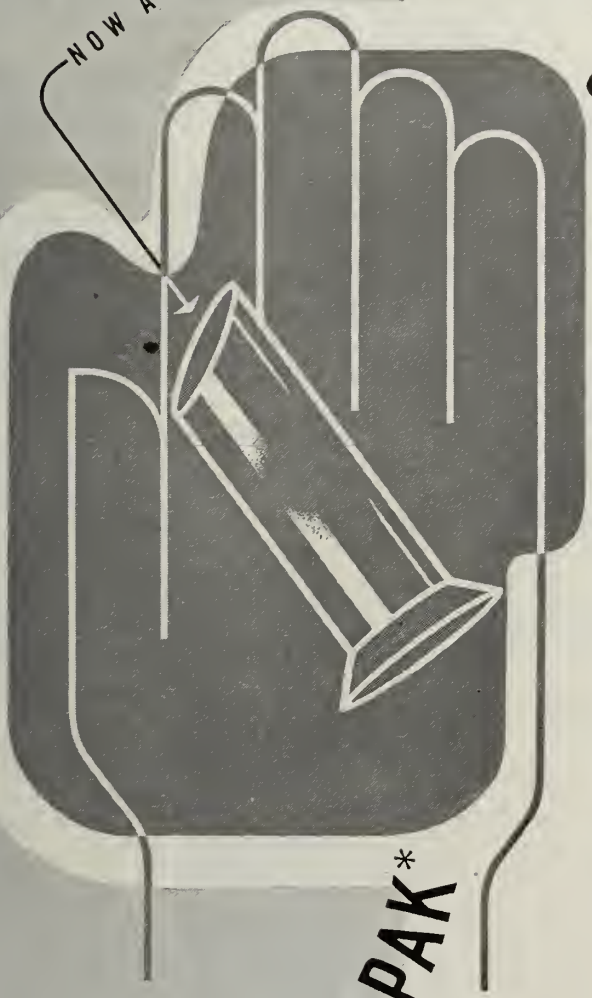
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1 Klein, H. L., J. Mo. State M. A., April 1939
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COMMERCIAL ANNOUNCEMENT

ADNEPHRINE

A newly developed synergistic combination of Neosynephrine, aminophylline and phenobarbital to which the name Adnephrine has been given is being favorably reported as an addition to the medical armamentarium against hay fever, according to Dr. J. Mark Hiebert, vice-president of the Frederick Stearns & Co. Division, Sterling Drug Inc., Detroit, Mich.

The first published report of the combination came from Dr. O. P. Falk, St. Louis, and since this original publication Stearns has had the preparation under clinical observation by outstanding allergists throughout the country, Dr. Hiebert said.

Every effort is being made at the Detroit laboratories and plant to have the product available on doctors' prescriptions for hay fever sufferers by this fall.

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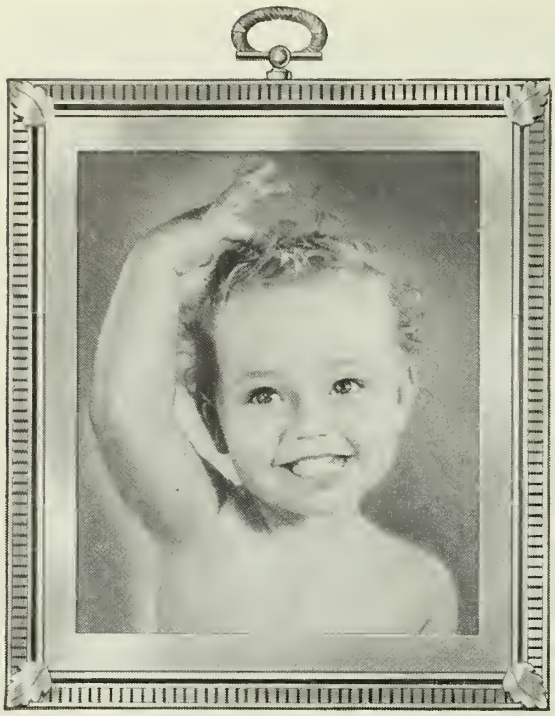
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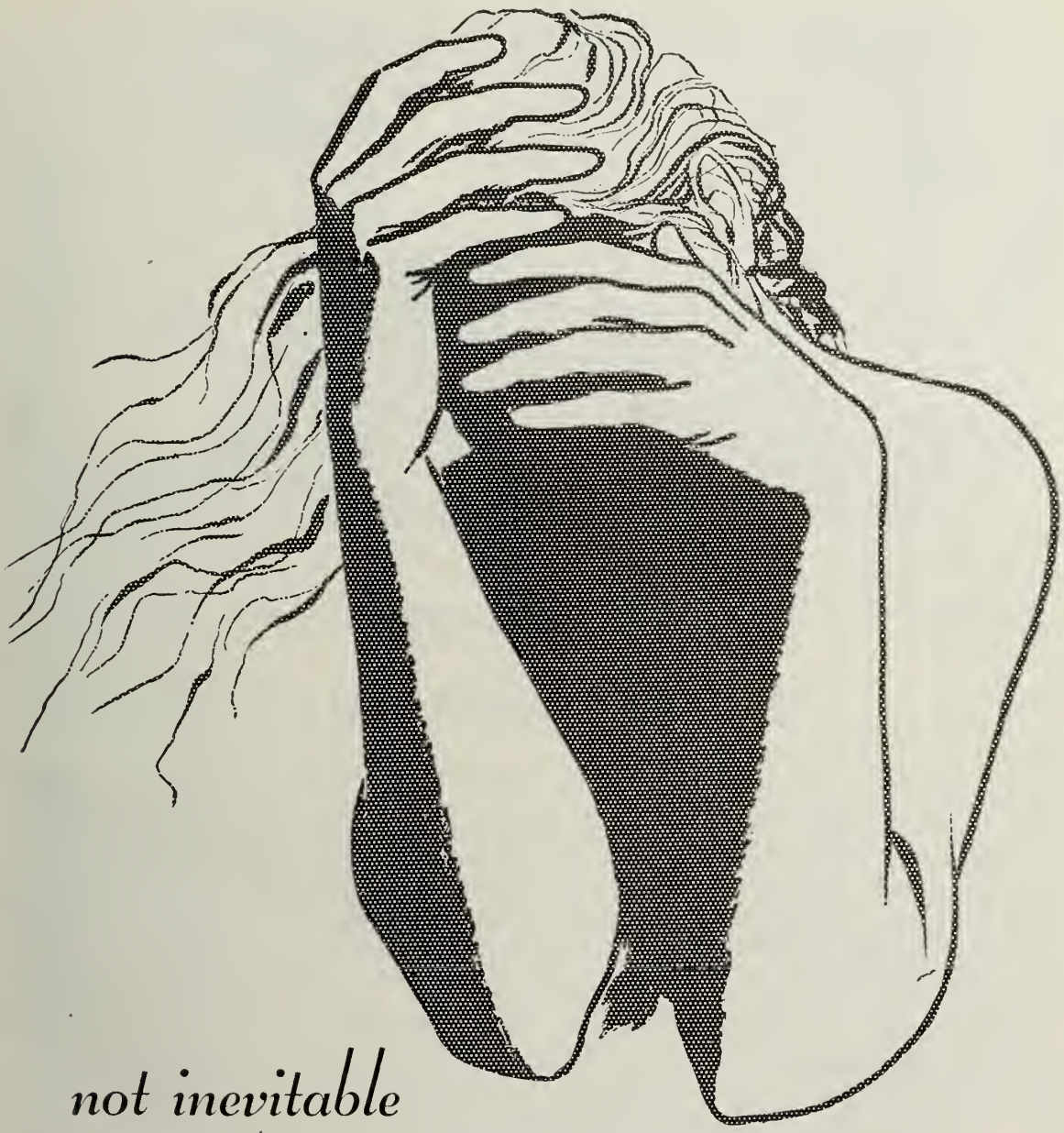
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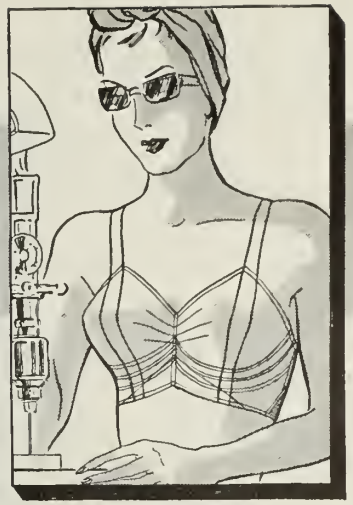
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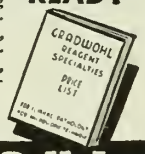
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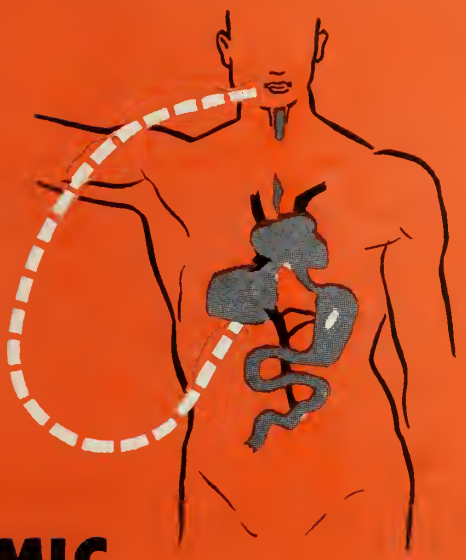
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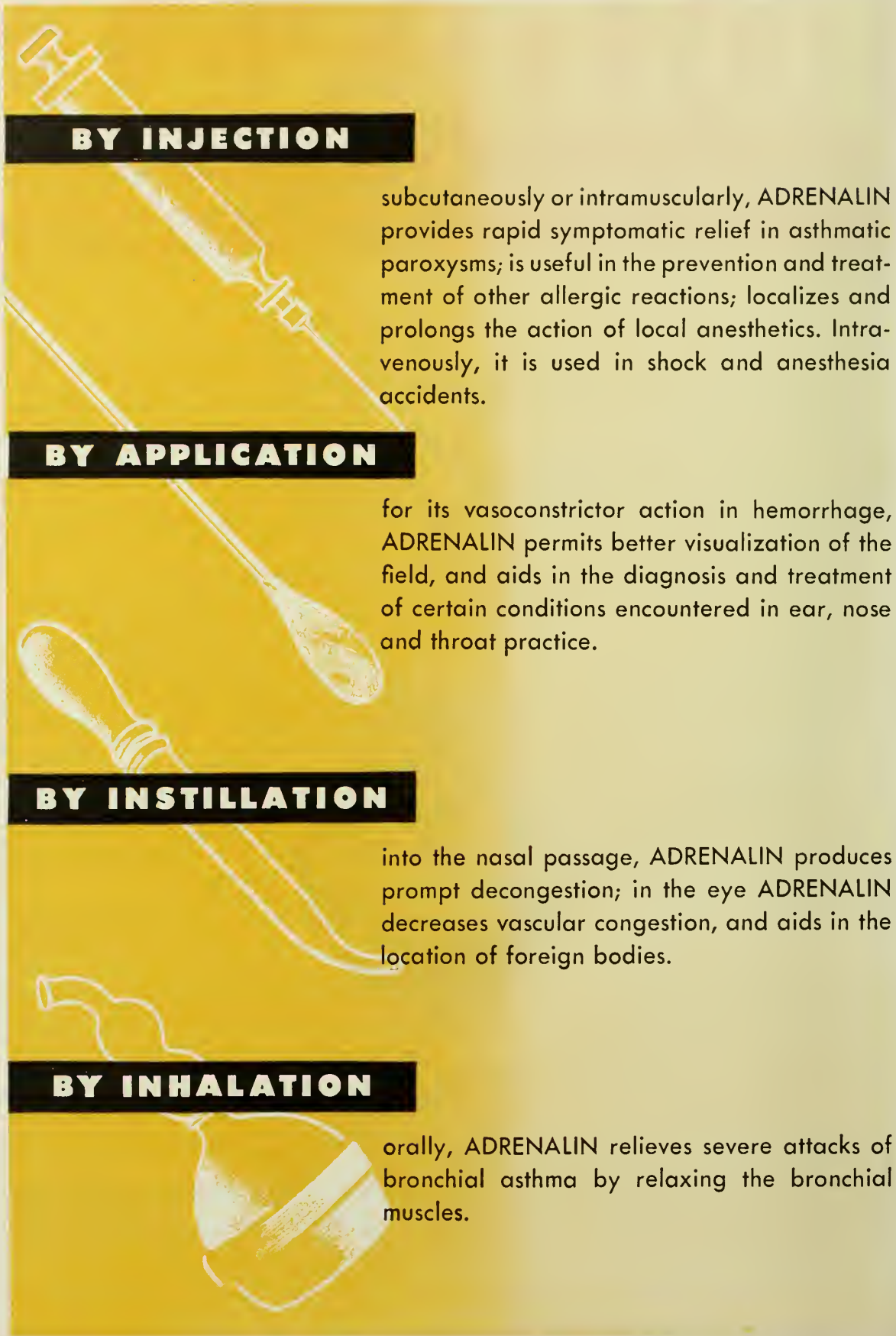
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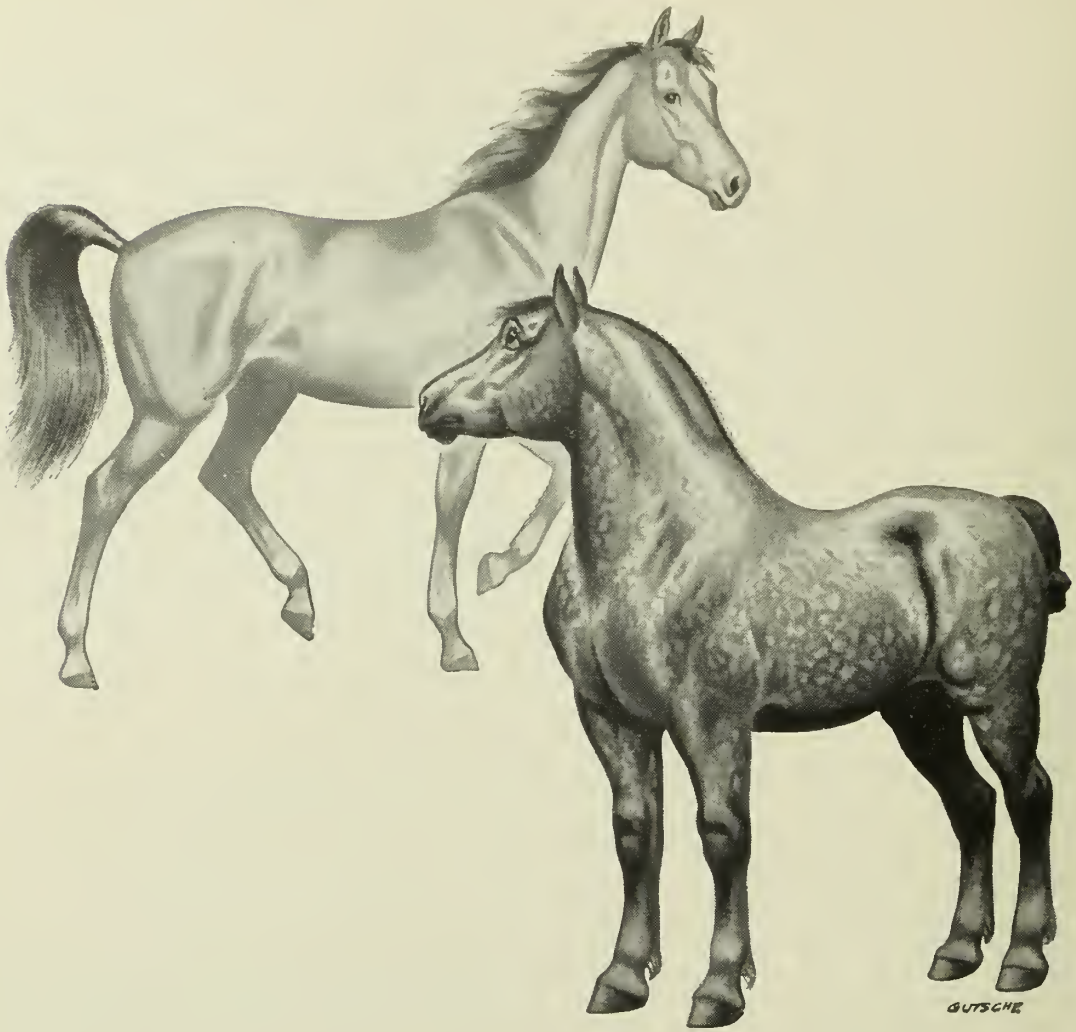
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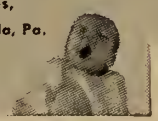
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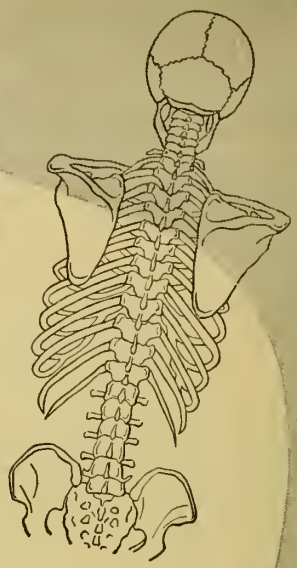
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*McCune, W. S., and Evans, J. M.: Intraventricular Penicillin in the Treatment of Staphylococcic Meningitis, J. A. M. A. 125:705 (July 8) 1944.

Gould, A. H.: Mixed Bacterial Meningitis Following Cranio-Cerebral Trauma, Rocky Mountain M. J. 41:560 (Aug.) 1944.

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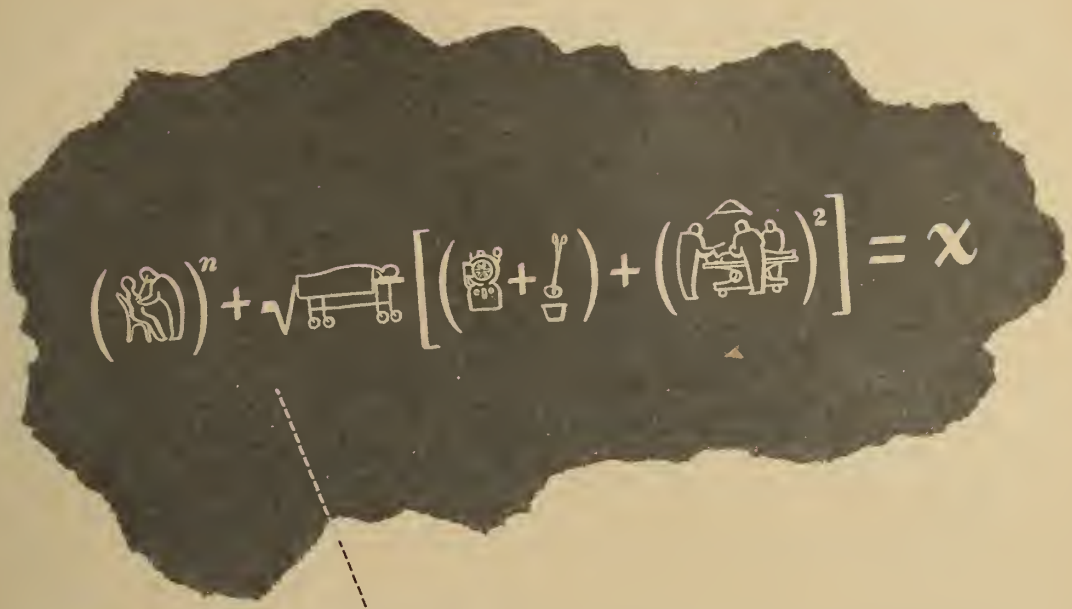
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1. *Meyer, E., and Arnold, L. (1938), Amer. J. Digest. Dis., 5:418.*

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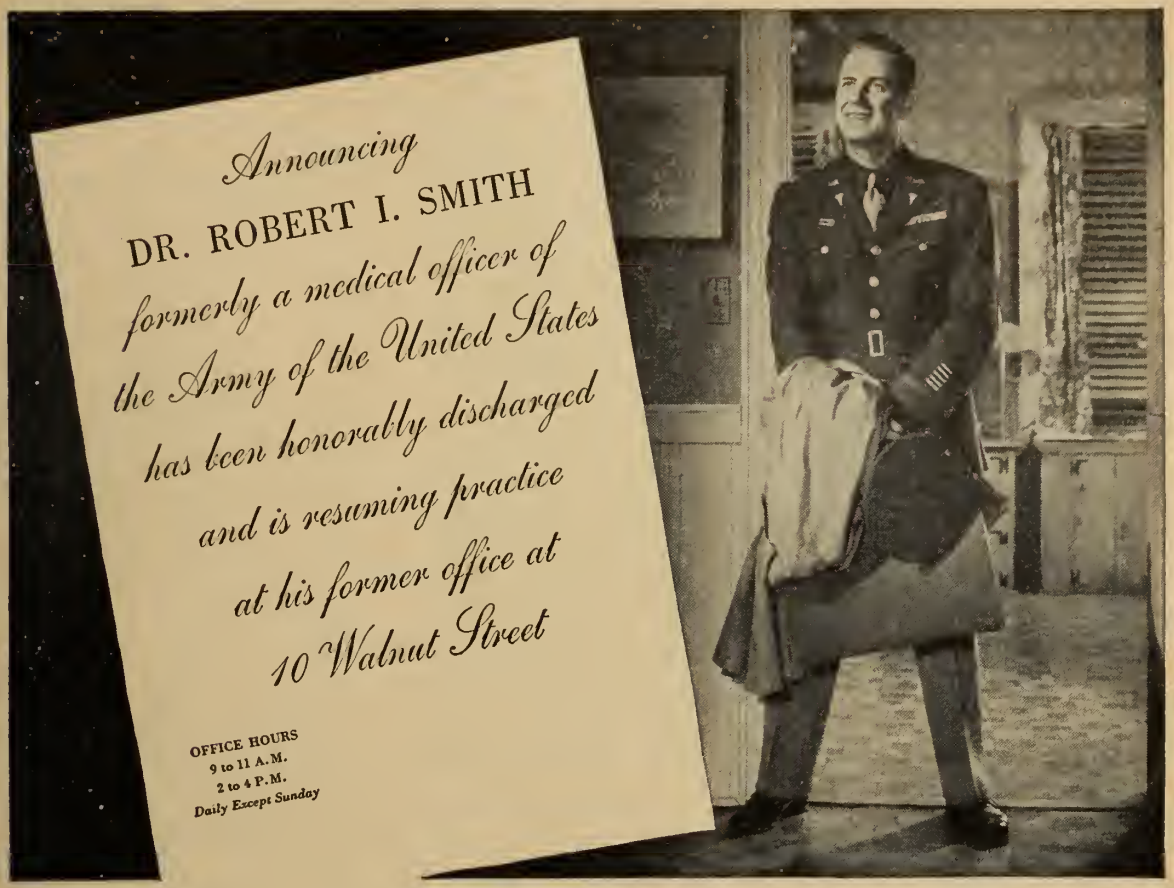
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INDUSTRIAL HEALTH

RECENT DEVELOPMENTS IN PNEUMOCONIOSIS

A. J. LANZA, M.D.
NEW YORK

Thirty years ago one thought of pneumoconiosis in terms of silicosis and the two words are often carelessly used as though their meaning were identical. From 1914 onward, silicosis received an increasing amount of attention and it was the general feeling among investigators in this field that silicosis was the only form of pneumoconiosis which was of prime importance. It was a clinical entity in itself, could cause disability and death and was frequently associated with tuberculosis which acted to expedite a fatal outcome.

In 1927, the term "asbestosis" first appeared in connection with a claim for workmen's compensation in Massachusetts, but this occupational disorder was not investigated until seven years later.[2] Here was another definite type of pneumoconiosis with a pathology distinct from that of silicosis and which also could produce disability and death.

During these thirty years a great deal of laboratory research and field study has been carried on in this country seeking to clarify the etiology and pathology of these two diseases. Abroad there is the outstanding work of the South African authorities and that of the English, the Canadians and the Australians, as well as similar investigations in France, Germany and other countries.

Field studies have crystallized ideas on etiology and the work of Gardner and his colleagues in Saranac have given a great deal of knowledge concerning the pathology of these two diseases. The roentgenologists, pioneered by the late eminent authorities, Pancoast and Sampson, have made their contribution to diagnosis. Also, engineering studies and experimentation have developed methods of controlling the dust exposures which are their underlying cause. Some of the earlier concepts have had to be changed but it is still evident that silicosis and asbestosis, to which must be added silico-tuberculosis, are the important form of pneumoconiosis from both the industrial and public health standpoints.

It is not entirely certain how silica produces its effects in the lungs, but the evidence is that the reaction is a chemical one. Likewise, the evidence indicates that asbestosis is produced mechanically.

The tendency of the silicotic person to become tuberculous has been recognized in every country in which this disease has been prevalent. Silicosis definitely predisposes to tubercle infection, the mortality from this cause ranging from ten to twenty times that of nonexposed persons. The nature of the relationship between these two conditions is not clear, but it has been generally thought that tuberculosis was a terminal condition. Of late, Dr. Gardner believes that tuberculo-silicosis in its chronic phases is neither tuberculosis nor silicosis, nor a mere superimposition of one condition upon the other, but that the two irritants act together to produce something that is entirely new and different.[3] This observation may have an important bearing on the attempts that are being made to clarify the pathology of other industrial dust-borne diseases mentioned later.

There have been no special recent developments with respect to asbestosis. The number of workers exposed was and is but a fraction of that exposed to silica. Mostly associated with textile processes, asbestos exposure could be and was controlled. It is a serious disease and must always be watched for where asbestos dust is present. With respect to tuberculosis and asbestosis, the two diseases may coexist, but there does not appear to be the causal relationship that exists between silicosis and tubercle infection.

Early ideas on silicosis were based upon experi-

Read before the St. Louis Medical Society, October 16, 1945.
Associate Medical Director, Metropolitan Life Insurance Company.

ence obtained in the hard rock mining industry in which the causative agent is quartz, SiO_2, and silicosis was thought to be a disease distinctive of the mining industry. Eventually, it became evident that many industries contained processes which involved exposure to silica dust and that frequently there was also exposure to other dusts associated with the silica. Different clinical patterns were defined. These substances present as dust along with the silica modify its action, the general tendency being to retard the action of the silica. It was thought some substances, notably free alkalies, might intensify the action of silica but it is doubtful if there is known at present any occupation in which the action of silica is enhanced by the presence of other substances. Fortunately, the general action of these mixed dusts is in the other direction. Such retardation has been described in the granite industry; iron oxide and coal dust likewise change the silicotic reaction. Furthermore, the presence of substances like gypsum and iron may cause aggregations with silica particles in the atmosphere so that they tend to fall out of suspension.[4]

When crystalline silica is heated in certain industrial processes, two other forms of silica are produced—crystobalite and trydimite. These conversion forms of free silica are very active and toxic and will produce silicosis more rapidly than ordinary quartz. This may account for the clinical picture seen occasionally in some industrial exposures.

There has been much conjecture and dispute about the effects upon the lung of silicates—dusts containing silica in a combined form. I believe it was Badham of Melbourne who first coined the term "silicatosis." Marked exposure to a silicate dust will, in some instances, produce roentgen ray evidence of change—exaggerated linear markings. These may tend to clear up after removal from exposure. They are not associated with symptoms or disability, although a study of the tremolite talc industry in New York State showed in some of the individuals exposed a roentgen ray appearance resembling early asbestosis both in fineness, diffuseness and ground glass appearance. Two fibrous silicates were present, tremolite and anthrophylite, which the investigators concluded were capable of producing a disabling pneumoconiosis. These cases also showed lung plaques varying from small linear deposits to massive deposits of variable outline and density situated on the visceral pleura, including the regions of the diaphragm and pericardium.[5]

Dreessen, investigating the talc industry in North Carolina, found roentgen ray evidence of dust reaction but no disability. From the medical and public health point of view, exposure to silicate dusts does not imply the hazards associated with silicosis. However, in any given case in which a roentgen ray change can be demonstrated following exposure to any type of dust, a medico-legal hazard may exist.

From time to time, attention is called to some industrial group which presents roentgen ray films showing nodulation and a general appearance resembling silicosis in which the evidence rules out silica exposure. These occurrences are troublesome and confusing both to the industry and the physicians, as well as to the individuals concerned.

Siderosis is a term that has been much used recently. Electric arc welders, in a number of instances, show on roentgen ray films an appearance that is so like silicosis that differentiation is difficult, if not impossible, by this means alone. Apparently the inhalation of fumes from the welding process over a period of from six to ten years may cause inert iron pigment deposits in the lymphatics without fibrous tissue proliferation. There is no progressive change in these cases after exposure has ceased, nor does this condition predispose to tuberculosis or other infection. There are no symptoms and this pseudosilicotic condition has little, if any, clinical significance.[6] It may have a considerable medico-legal significance. Similarly, a group of lime burners in one of our industrial states showed a generalized nodulation. Iron, carbon and aluminum were identified as present in the fumes to which they had been exposed. There was no clinical significance in these cases.

Both of these groups properly could be classified as having pneumoconiosis. This type, as well as that produced by the silicate dusts, has been called benign pneumoconiosis which is a satisfactory term, at least in the present state of knowledge, based upon both clinical and pathologic studies. Doubtless other dusts associated with other working conditions will be found from time to time, which may cause similar manifestations. All the factors involving working conditions, length and intensity of exposure, the composition of the dust, and the previous working history have to be considered before arriving at a diagnosis. This is particularly true when one encounters an individual patient, either in a hospital or away from his usual working environment. When a group of men are being studied in connection with their work and all the factors are known with reference to both working conditions and their physical condition, an investigator is able to weigh all the evidence and to render an opinion with a high degree of accuracy. But with an individual patient who presents a roentgen ray film that looks like silicosis or pneumoconiosis and who may have other organic disease and where the nature and extent of dust exposure is unknown, caution is most advisable and it is essential to backtrack on the work history as far as possible.

At this stage of the discussion of pneumoconiosis, it might be well to consider just what is pneumoconiosis.

In 1942, Dr. Gardner of the Saranac Laboratory stated that the pneumoconioses include all chronic changes in the lungs induced by prolonged inhalation of dust with no implication as to the type or severity of tissue reaction. The latter may vary

from simple phagocytosis to progressive fibrosis. Excluded from this category are the responses to living bacteria and fungi which occasionally are inhaled as dust.[7]

Definitions are frequently unsatisfying as anyone will appreciate who has tried to compose one. The foregoing definition is a good one although it is possible more recent experience may lead to questioning the words "chronic" and "prolonged." It has been the general experience, that the development of pneumoconiosis was a matter of years rather than of months. Also, it is not always easy to determine when a condition becomes chronic.

I have not mentioned fungous infections and will do so only in passing. Coccidioidal disease has become quite troublesome in some localities and is caused by inhaling dust in certain areas in which this fungus inhabits the soil. It would not commonly be thought of as pneumoconiosis although the method of causation is similar.

There is an occupational disease peculiar to the cotton textile industry known as byssinosis, presumably due to the inhalation of cotton dust, and which may or may not be a pneumoconiosis. The fibrosis is not marked, cotton dust has not been detected in the lungs of affected workers and the disease is not progressive after removal from exposure and it appears to have no tendency to cause tuberculosis. Byssinosis is more prevalent and has received more attention in Great Britain than in this country. In England, it is compensable and is credited with the ability to cause total disability and presumably death. It develops slowly over a period of from ten to twenty years and the roentgen ray appearance is not characteristic but corresponds to chronic bronchitis.[8]

It remains to be seen whether or not byssinosis has any appreciable significance in this country. It should not be confused with the infectious illness found among workers in low grade stained cotton, an acute infection due to a gram-negative organism, Aerobacter Cloacae, which has been the subject of two or three reports by the United States Public Health Service.[9]

Another disease which has been reported recently in this country is bagassosis. Bagasse is the produce remaining after the extraction of sugar from sugar cane. This is baled and workmen who later open these bales may present the symptoms of bagassosis, namely, cough, sudden severe dyspnea, occasional hemoptysis, night sweats, chills and fever. Prolonged weakness is characteristic and there is usually leukocytosis of the polymorphonuclear type. The sputum is scanty and mucoid. The roentgen ray film shows a diffuse mottling throughout both lungs. Recovery takes place over a period of a few months and the roentgen ray picture clears.

The short time of onset and the duration do not correspond with a pneumoconiosis; it is possibly an infection or of an allergic nature.

There are two other diseases recently reported which apparently are due to the inhalation of dust or fumes. They are not only very serious but quite distinct from any industrial disease so far recognized. Fortunately, the cases are few and the conditions which produced one of them at least appear to be no longer in operation.

Some employees of certain industries concerned in the manufacture of fluorescent lamps were found to have a pulmonary disease which had the appearance of sarcoid. There have been about twenty or twenty-five cases of this disease with, I believe, about five deaths. Intensive study, both in the plants and the laboratory, have failed to bring out any clarifying information with respect to exposure, the causative agent or the true significance of this condition. It would seem that these resulted from exposure during 1940 and 1941, that they began to manifest themselves in 1943 and that the manufacturing procedures have been changed and that there is no evidence of further trouble.

Various hypotheses have been advanced by the physicians and research workers who have been studying these cases. The disease may be an atypical silicosis due to the inhalation of exceedingly fine particles. Also, it may be due to the inhalation of fluorescent powders activated by some form of radiation; and it may be due to the toxic action of some substance present in the process. Suspicion has fallen upon beryllium. The factor of infection may be present; possibly a combination of two or more of these suggested causes may be responsible.[10]

Beryllium has not previously been considered toxic[11] but the Saranac Laboratory states that beryllium is a potent irritant and capable of producing chronic disease. More information will be forthcoming as the present studies develop.

Another disease has been detected in a group of workers who process bauxite at a high temperature. This process, by no means new, has never previously involved any health hazard as far as is known. In some plants in Canada, several cases were detected which presented the following symptoms: cough, dyspnea, cyanosis, to the point of disability and a distinctive roentgen ray appearance characterized by bilateral spontaneous pneumothorax. There have been from twelve to fifteen cases with four deaths so far. The postmostem examinations showed massive extreme fibrosis and emphysema. There was no evidence of tuberculosis.

I am indebted for my information about these cases to Dr. Andrew Riddell of the Health Department of Ontario who has kindly enabled me to obtain a film and lantern slides of one of these cases. Here, again, it remains to be seen whether this condition can be classed as a pneumoconiosis. The fatal cases lived about a year or a little longer after disability occurred.

There are certain definite implications with respect to the subject of pneumoconiosis and other air-borne occupational diseases. While silicosis and asbestosis are the two most important industrial

dust diseases, knowledge regarding them is still far from complete or thorough. It is being realized more and more that all industrial dusts are potential sources of trouble and that new types of exposures and new types of reactions are being discovered. Combinations involving active chemical substances, rare metals and radiant energy imply harmful possibilities, and even a dust commonly considered harmless may under certain circumstances or in combination with other substances, also in themselves considered innocuous, become actually or potentially dangerous. Any dust which can produce roentgen ray changes, even though classed as benign pneumoconiosis, must be considered seriously. With any dust, not only does there arise the question of its specific reaction but of its relationship to tubercle infection. And here, one moves from the medical and scientific field to that of medico-legal action.

Prevention of these dust diseases is entirely possible. Engineering skill and engineering methods can be applied to control or remove the dust at its source. This is often expensive, but so is the provision of safe drinking water. People have been educated in this country to spend enormous sums of money to provide safe drinking water but they have not learned yet to be as intelligent about the pollution of air as about the pollution of water.

Hand in hand with dust control in industrial establishments goes medical supervision. One of the lessons learned in war plants is that competent medical supervision and competent engineering control guarantee sound preventive medicine. Both are essential and satisfactory results cannot be obtained with one alone.

It is essential that industrial physicians, roentgenologists and other physicians who may come into contact with industrial workers be alert to detect and follow up unusual cases. The two diseases mentioned before were detected early in plants having a good medical service. One thinks of the possibility of individual cases in which the significance of the findings and the relation to occupation are apt to be overlooked.

One of the phases of the pneumoconiosis situation which has attracted a great deal of attention in the last few years is the use of aluminum dust both for the prevention and treatment of silicosis.

It is almost ten years since Denny, Robson and Irwin of the Banting Institute in Toronto demonstrated that by administering finely divided aluminum dust to experimental animals they could inhibit the action of silica. This was confirmed by other investigators, notably by Dr. Gardner of the Saranac Laboratory. The Canadian group used metalic aluminum and Dr. Gardner also used amorphous hydrated alumina. Several of us who are interested visited the Silicosis Clinic in Porcupine and were greatly impressed by what we saw. There is no question but that a number of the silicotic employees who had undergone this treatment experienced considerable relief of their symptoms, notably cough and dyspnea. It should be noted, however, that in other instances no improvement was noted and, in other localities, it has been difficult at times to induce the men who were receiving this treatment to continue with it.

It is natural that the novelty of this type of administration of a therapeutic agent would cause some hesitancy with respect to its adoption. There also has been a natural reluctance to try this mode of therapy on silicotic patients who are also tuberculous.

At the present time, this whole matter has been the subject of discussion by the Council on Industrial Health and the Council on Pharmacy and Chemistry of the American Medical Association and it is the intention of these two councils to issue a joint statement relative to the status of this subject at an early date. While there is naturally some divergence of opinion on various points among those concerned with the demonstration of this method, I believe that there is a general agreement with respect to basic considerations.

Silicosis is essentially a chronic disease and takes years to develop and, once the disease is well advanced, the general outlook is not very good, particularly with respect to the possibility of tubercle infection. Consequently, it is going to take a considerable length of time to demonstrate whether in human beings this method of treatment by the inhalation of aluminum dust or of amorphus hydrated alumina will fulfill the expectations raised by the results in experimental animals. It is apparent that where this form of therapy or prophylaxis is being tried, it is necessary to maintain careful and accurate medical supervision if permanent and worthwhile results are to be demonstrated. All who are active in endeavoring to develop the use of aluminum are agreed that it is in no way a substitute for engineering control of the dust hazard and for medical supervision of workmen exposed. It is appreciated that in some instances it is difficult to control entirely the escape of silica dust into the atmosphere but, in any event, it is insisted upon that engineering control and medical supervision be adequate before aluminum treatment is initiated.

As far as is known now, metallic aluminum is nontoxic. In response to an inquiry in *The Journal of the American Medical Association,* January 20, 1945, the statement is made that American medical literature contains no convincing evidence of pulmonary or bronchial injury from exposure to aluminum dust. There is considerable literature on the action of metallic aluminum on the lungs and some of the German investigators have claimed that aluminum is capable of producing a pneumoconiosis. This has been denied by other observers. There have been some reports that amorphous hydrated alumina may have an unfavorable effect upon tubercle infection. It is obvious that careful supervision of this inhalation method of treatment is obligatory. There also arises the question of possible medico-legal complications with respect to

aluminum therapy and, again, only time will give us the final answer.

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TUBERCULOSIS IN INDUSTRY

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Control of tuberculosis in industry in the past was often hampered and made ineffective by costly roentgen ray procedure. The standard 14 by 17 inch film, universally regarded as the most accurate plate size for the detection of lesions in early tuberculosis, was too expensive in material and personnel for large scale use, and was not practicable for the further important reason that any considerable number of workers could not be handled in desirably short periods of time.

Now, however, tuberculosis in industry can be controlled effectively by the application of a new and relatively inexpensive mass radiography technic. Photofluorographic methods employing 35 mm. and 70 mm. roll film, 4 by 5 inch film, and 14 by 17 inch roll paper film have given industry tools for the control of a disease that strikes down the most valuable industrial workers—men and women between the ages of 20 and 45.

In 1943, nearly one half of the deaths from tuberculosis (44.8 per cent) was in this age group of maximum personal effectiveness. Indeed, from early adulthood to the age of 35, tuberculosis is the chief cause of death. Between the ages of 15 to 49, it is one of the first three causes of death; and between the ages of 20 to 34, one out of every six deaths among white persons and one out of every three deaths among nonwhite persons are due to tuberculosis.

Recent surveys show that from twelve to fifteen in every 1,000 industrial workers are attacked by tuberculosis, and in consequence they may become inefficient on their jobs, are often absent and spread the disease to others. The cost to industry is incalculable and the expense in human life beyond all measure.

During the war there was no general increase in tuberculosis. Nevertheless, there has been a larger proportion of deaths from tuberculosis in urban industrial areas than in nonindustrial areas.

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Industrial communities are spawning grounds for this dread disease. Overcrowding, insanitary living conditions and unusual fatigue are contributing factors that precipitate the susceptible into breakdowns and hinder the already diseased from achieving maximum recovery.

Tuberculosis control efforts should be and have been concentrated on these areas in anticipation of an expected rise in tuberculosis mortality as a consequence of the war and its contingent health strains and pressures.

Soon after war was declared, the United States Public Health Service established a tuberculosis control office for the purpose of assisting state and local health departments in the development of tuberculosis control programs. Then, in July 1944, the Tuberculosis Control Division was created. The objectives of this Division are as follows: (1) case finding, (2) isolation and treatment, (3) after-care and rehabilitation, (4) protection of the family of the tuberculous person against economic distress.

The purpose of case finding is to discover hidden cases of tuberculosis. Such efforts, in the past, were directed toward the family members of known infectious cases. Since the introduction of mass radiography, however, case finding has had a much larger range. It has been pointed to large population groups. The two sizable portions of the population which can be reached easily by mass radiography are (1) persons admitted to general hospitals, and (2) persons employed in the large and small industries of the nation. This second group is at the present moment one of the chief concerns of the Tuberculosis Control Division.

When cases of tuberculosis are found, they must be given medical care and be isolated to assist the patient in renewing health and hope, and to prevent spread of the disease. To be sure, there is a lack of vision in case finding if treatment is delayed by a shortage of sanatorium beds. In every industrial community in which a tuberculosis control campaign is undertaken, plans must be made for the provision of a sufficient number of beds. Temporary facilities may, for a time, be utilized until the people, realizing the seriousness of the community's plight, will demand the construction and maintenance of the necessary hospitals.

After-care and rehabilitation are extremely important aspects of the whole fight against tuberculosis. It is well known that tuberculosis is a relapsing disease. The industrial worker who has arrived at an arrestment of his case must have help and competent advice, both medical and social, in his readjustment to self-supporting life. This is a large problem which will require the cooperation of private industry and local, state and federal agencies.

When the industrial worker is stricken with tuberculosis, his family often is required to depend on public funds for the necessaries of life. Accordingly, a sound medical program must be complemented by a generous plan of public assistance. If

this objective is not realized, the full value of other phases of the program cannot be achieved.

These, although perhaps too briefly stated, are the principal objectives of the Tuberculosis Control Division. Auxiliary methods of control include research, health education and the establishment of clinic facilities. Their application to health in industry is plainly apparent.

In order to demonstrate the new technics in mass radiography and at the same time actually to begin the survey of large industrial groups, the Public Health Service procured, in 1942, eight transportable 35 mm. roentgen ray units. In July 1945 twenty such units were in operation by the division. In the beginning, these units were assigned principally to shipyards, ordnance plants, air depots and other essential war industries where workers could be examined on a mass basis. In the postwar period these units are being given a wider range of industrial application.

These small film units also are lent to health departments for limited periods to demonstrate the need for such services, to train local personnel and to help local health departments and industries establish their own case-finding programs. These units now can be purchased on the open market. It is estimated that about 200 are in operation throughout the country, exclusive of those in use by the armed forces.

Since its introduction as a case-finding instrument, the photofluorograph has undergone great technical advances. Current models contain automatic cameras and phototimers which reduce operational technics to the simple pressing of a switch. A 100-foot roll of 35 mm. film permits 700 exposures, and a single unit, with its team of medical officer, two technicians and record clerk, easily can examine 500 persons in eight hours.

A variety of sizes of film can be used—the 35 mm., 70 mm., 4 by 5 inch and 14 by 17 inch roll paper. All have specific advantages and the choice of unit and film depends upon the requirements and resources of the operating agency.

From July 1942 to July 1945, the field units of the Public Health Service have examined in twenty-nine states over a million persons. An incidence of tuberculosis of 12 per 1,000 was found. In this group 65 per cent of the lesions found were minimal, 30 per cent were moderately advanced and 5 per cent far advanced in extent. This distribution is of great interest in view of the fact that minimal cases comprise only from 10 to 12 per cent of the tuberculosis cases admitted to sanatoriums.

Interesting special projects which indicate the scope and possibility of chest surveys have been made over a period of three years. These include the examination of 110,000 federal employees in Washington, D. C., more than 100,000 Mexican laborers, residents of government housing projects, inhabitants of relocation centers, food handlers, municipal employees, patients in mental hospitals and student nurses. In Europe, at the present moment, many photofluorographic units are in operation at clearing centers for displaced persons.

In every industrial plant it is recommended that all present employees and all new employees have routine chest roentgen rays. Periodic examinations of the entire working force should be undertaken at reasonable intervals in order to discover new cases as early as possible. Then care must be exercised in the diagnosis and the determination of activity of minimal lesions. Thorough clinical study should be an invariable concomitant of the roentgen ray findings because even the best experts have difficulty determining the status of activity of lesions on a particular film. In some cases it may be necessary to wait from three to six months for comparative clinical study before final diagnosis can be made.

Three definite recommendations can be made for effective effort in the control of tuberculosis in industry: (1) establish an equitable labor policy for dealing with the problem of tuberculous workers; (2) plan a specific program for the rehabilitation of tuberculous workers; (3) plan a program of community participation in helping workers.

The health committees of labor unions are sympathetic to this kind of health activity and, when the facts are presented to them, readily agree to full cooperation. The sick worker is a liability to himself, his family and his fellow workers. The union, therefore, is interested in establishing a helpful labor policy with respect to tuberculosis.

In order to rehabilitate the tuberculous worker, industry and community must jointly accept the responsibility of providing both temporary and permanent sheltered employment for a certain number of workers. The many difficulties presented by this subject can be overcome if full use is made of our tremendous and varied resources.

Because tuberculosis is a social and economic as well as a medical problem, the whole community must be drawn into any really successful program. From the beginning the local welfare agency, the voluntary tuberculosis association, management and labor should be organized into an actively working partnership. Indeed, the time has come for the whole public to accept the responsibility of providing financial security for the tuberculous worker and his family under all circumstances associated with the control of this disease. Grants should be made available to patients during treatment and during after-care and rehabilitation, in some cases for prolonged periods of invalidism, and perhaps for indefinite periods, if permanent disability renders the tuberculous person unfit for work. It must be stressed that unless there is freedom from want and adequate maintenance without anxiety, the best medical care program for tuberculosis control in industry and in the community will be only partially successful, and in the long run very costly.

It is estimated that by the end of 1945 more than 20 million persons aged 20 or older, or nearly one

out of every five adults in the United States will have had chest roentgen ray examinations either by the armed forces, health departments, industry or voluntary health agencies. The amount of known tuberculosis has shown a significant increase. Ways and means must be found to furnish each patient with all the services necessary in the control of this disease.

The Public Health Service will assist state and local health departments in the development of control programs by setting up standards based on careful research in public health methods, by offering consultation, by demonstration of new technics, by grants-in-aid for program development, and by training professional personnel. State and local health departments will work in close cooperation with public and private industries and private physicians in the establishment of effective tuberculosis control activities as an integral part of the general health program, including industrial hygiene.

There can be no greater opportunity than this for protecting the health of America's manpower. Here is the chance to do case finding and follow-up among fifty million important citizens and their families. The principal task now is to extend tuberculosis control activities so as to reach the greatest number of workers and their families in the shortest possible time.

OCCUPATIONAL DERMATOSES

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Historical.—Occupational dermatoses have existed ever since industry first began. The first comprehensive book on the subject of occupational diseases called "De Morbis Artificum Diatriba," written by Bernardino Ramazzini in the 17th Century, described many occupational skin diseases.

Incidence.—About 65 per cent of all occupational diseases are dermatoses, and it has been estimated that the actual loss in the United States from occupational dermatoses is more than 100 million dollars.

Causes.—People having certain types of skins are predisposed to the action of external irritants. Those having thin skins deficient in fatty and watery constituents, those having excessive perspiration and those having other skin diseases are predisposed to occupational dermatitis. Occupational dermatitis is more prevalent in warm weather than in cold, but the chief predisposing cause of occupational dermatitis is lack of cleanliness, both personal and environmental.

Actual causes of occupational dermatitis can be divided into mechanical, such as friction, pressure, and trauma; physical, such as excessive heat or excessive cold, or excessive radiation; chemical causes which in turn can be divided into primary irritants and sensitizers, and each of these can be divided into inorganic and organic; plants and biologic agents.

Mechanical Causes.—Mechanical agents usually cause occupational stigmata which manifest themselves in callosities, hygromata, atrophy and new growths of the skin.

Physical Agents.—These consist of heat, cold and radiation. Heat causes intertrigo and telangiectasis. Cold causes pernio. Radiation can cause burns of various degrees and even cancers such as are caused by roentgen ray and radium.

Chemical Causes.—Chemical causes act on the skin in two ways as (1) primary irritants and as (2) sensitizers.

Primary Irritants.—These cause dermatitis on the normal skin if they are permitted to act in sufficient quantity for sufficient length of time because they actually form chemical combinations with the skin or abstract from the skin some of its essential ingredients. They act directly at the site of contact and no other place. They may act as keratin solvents or abstract from the skin the fats, cholesterols and water; or they may act as protein precipitants, or oxidizers, or reducing agents.

Sensitizers.—Sensitizers are agents which do not necessarily cause demonstrable cutaneous changes on first contact but may effect such specific changes in the skin that after from five to seven days or more, further contact on the same or other parts of the body will cause dermatitis.

Almost any substance can be a sensitizer. This includes the primary irritants which, when they sensitize an individual, will so condition the skin that contact with such high dilutions as would not ordinarily cause dermatitis may, after sensitization, cause severe skin reactions.

Clinical Types.—Occupational dermatitis may be of the acute eczematoid type. Low dilutions of primary skin irritants and the sensitizers cause this type of dermatitis. Strong concentrations of primary irritants usually cause burns or ulcers.

Long continued contact with low concentrations of primary irritants will dehydrate the skin or abstract its fats or its watery content causing chronic fissured eczemas.

Folliculitis and acneform types of occupational dermatitis are caused by contact with petroleum oils, heavy coal tar distillates and solid chlorinated hydrocarbons.

Keratotic lesions, papillomata and epitheliomata of the exposed parts may be caused by the heavy coal tar distillates, crude petroleum oil and radiation.

Diagnosis.—All dermatoses occurring in workers are not occupational. In order to make a diagnosis of occupational dermatitis it is necessary to consider (1) the history of the eruption. This must show the dermatitis did not antedate employment; that it developed during a period of industrial exposure or very shortly thereafter and, if the case is

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still acute, the history should show that it improves when away from work and exacerbates when back at work. This latter criterion may not hold true when the worker is getting well and has developed a certain amount of immunity or "hardening."

(2) The site of eruption of an occupational dermatitis is usually on the exposed parts or the sites of friction such as the wrists where the sleeves rub or the collar line where the collar rubs. However, the parts covered by clothes also may be affected, especially if the clothes are not kept clean and dusts, fumes, oils and other soil have soaked through and saturated them.

(3) The appearance of the lesions of occupational dermatitis are usually characteristic of the class of irritant but not necessarily of the particular irritant. For instance, an acute eczematoid type of dermatitis usually is caused by a sensitizer or by low concentrations of a primary irritant, and the occupational acneform eruptions are caused by petroleum oils, heavy coal tar distillates or the solid chlorinated hydrocarbons.

(4) An important procedure in the diagnosis of occupational dermatitis is the patch test. Before patch tests are used one should be familiar with the method of application, the concentrations of the chemicals to be used, the length of time the patches are to be left on the skin, the number of times the patient should be seen in order to read reactions and the proper evaluation of the reactions. Patch tests intelligently performed are of great value in the diagnosis of occupational dermatitis, but incorrectly performed they are misleading and lead to wrong diagnosis. Diagnostic patch tests should not be performed with primary skin irritants because they will cause reactions on everyone. Patch tests may be performed with such low concentrations of primary irritants as have been shown to be innocuous to the normal skin when permitted to remain on for patch test purposes. Patch tests may be performed with primary skin irritants for the purposes of comparison with other primary skin irritants or in order to determine whether the particular chemical is or is not a primary skin irritant, or for determining the sensitizing properties of primary skin irritants.

A simple rule in diagnosis to which there are but few exceptions is that if a doubtful case of occupational dermatitis shows no marked improvement two months after occupational exposure ceases, it is probably not of occupational origin.

Differential Diagnosis.—The main difficulty in differential diagnosis in occupational dermatitis is in differentiating from nonoccupational contact dermatitis. Workers may develop contact dermatitis from substances such as plants which they may contact in the country or in their gardens, or in their homes, or from such chemicals as paints, lacquers, which they use in their homes, or from harsh cleansers which they use in their homes. The resulting dermatitis is exactly the same in appearance as if they met these irritants in the course of their employment. In such cases patch tests are of diagnostic significance. If patch tests with substances that they encounter in their occupational environment are negative, the physician must look for a nonoccupational cause. The history of the eruption and the influence of the occupational environment on the eruption must also be considered as differential diagnostic criteria.

It was thought, up to a year or two ago, that the dermatophytids were important problems in differential diagnosis. In a recent study made by the Dermatoses Section, Industrial Hygiene Division, U. S. Public Health Service, it was found that the question of differential diagnosis of occupational dermatitis from phytids occurs only about once in 10,000 cases. In such cases patch tests are of value. Negative patch tests combined with the presence of fungous infections somewhere on the body, as between the toes, and a positive trichophytin test make the diagnosis of a phytid. On the other hand, positive patch tests with negative trichophytin test would make the diagnosis occupational dermatoses.

Prevention.—The theme of all preventive measures is "keep contact of workers with irritants at a minimum." This means that processes in which irritants are used should be subjected to appropriate engineering control. Such engineering control may involve a change in the process, enclosing or segregating the activity, use of wet methods, and general or local exhaust ventilation. The floors and walls of work rooms should be cleaned daily by methods which do not in themselves produce atmospheric contamination, such as employing an industrial vacuum cleaner or by wet cleaning methods. Manufacturing equipment should be kept clean.

Personal protective measures should consist of personal cleanliness, protective clothing and, where protective clothing is impracticable, protective ointments. In times in which workers are readily available there should be preemployment examinations to select workers for jobs in which there are skin hazards, and only those who have no skin diseases be employed. It is also good prevention to transfer to other jobs those workers who develop recurrent attacks of dermatitis.

Personal Cleanliness.—Adequate washing facilities should be provided in all occupations in which there are skin hazards. In some occupations such as entail contact with insoluble cutting oils or in places where petroleum or heavy coal tar distillates are handled, there should be an adequate number of shower baths to enable all the workers going off shifts to take a bath and dress in thirty minutes. These shower baths should be compulsory and supervised. In such occupations it is desirable for the management to furnish the workers with clean underwear and work clothes daily.

Protective Clothing.—When the skin hazard is so great that it is necessary to wear protective clothing, it should be furnished, kept clean and in good repair by the management.

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Coveralls should be made of closely woven cotton fabrics. Gloves should be made of materials suitable to keep out the irritant. Against petroleum solvents ordinary rubber does not last very long. Some of the synthetic rubbers are much more resistent to petroleum solvents than natural rubber. Against the chlorinated hydrocarbon solvents neither natural nor synthetic rubber is much good, but the polyvinyl alcohols will resist their action. The polyvinyl alcohols are made brittle by water, and they should be kept out of water as much as possible. Workers usually complain that gloves make their hands perspire. As a matter of fact, they do not. They prevent the evaporation of perspiration from their hands. To meet this objection, rubber gloves can be fabric lined. Workers often say that they cannot grip with rubber gloves. In such cases gloves with corrugated finger tips can be obtained. In some occupations soft leather washable gloves are more desirable. In some occupations finger cots may give sufficient protection.

When gloves are worn to prevent dermatitis from liquid irritants, it is desirable to wear impervious sleeves which clasp over the gloves at the wrists in order to prevent anything from getting into the gloves. It is sometimes desirable to put a few holes at the tops of impervious sleeves in order to allow better ventilation. The management may object to sleeves because they state that they may get caught in revolving wheels. Therefore, the sleeves should be made of impervious materials which tear easily.

Aprons.—Aprons are important in protecting the front of the body. They should be made of impervious materials such as rubber or fabrics coated with a resin or resin films themselves. They should be of sufficient length to protect the exposed parts. They may be split like chaps. In some occupations it may be desirable to have all the protective clothing made fireproof. This can be done by treatment with a fireproof material after laundering.

Protective Ointments.—Some portions of the body cannot be well protected by protective clothing, for instance the face. Some workers at some jobs object to the use of gloves and sleeves. In such instances, protective ointments may be used. Protective ointments should be made specially to protect against the particular hazard. There is no one protective ointment that will protect against all hazards. Protective ointments can be classified in many ways. For instance, they can be classified as water repellent and oil repellent. They also can be classified as greasy type, and the dry type; as the invisible glove type or the visible glove type. They may offer mechanical protection or they may contain detoxifying chemicals; but, whatever type is used, all protective ointments should have the following general qualifications: (1) they themselves should contain no irritating chemicals; (2) they should give actual protection against the hazards as determined by chemical tests; (3) they should be in such form that they are easily applied; (4) they should have sufficient adherence so as not to rub off easily from the ordinary contact of employment; (5) yet, they should be easily removable with soap and water after work; (6) they should have sufficient stability to stay on the shelf without deterioration for several months.

Industrial Cleansers.—The management should furnish the workers with proper soaps or other cleansing agents. For most industrial workers the ordinary toilet soaps or the ordinary industrial cleansers are sufficient. For a small percentage, 5 per cent or less, whose skin will not tolerate ordinary soaps or alkali cleansers, special cleansers must be provided. Such special cleansers can consist of the sulfonated vegetable oils, such as sulfonated castor oil; the anionic synthetic detergents, such as the alkyl sulfonates or the high alcohol sulpho succinates; or the cationic detergents such as the quaternary ammonium compounds; or combinations of these. It may be necessary for workers having particularly dry skins to have superfatted cleansers containing 2 or more per cent of lanolin. Whatever industrial cleanser is used, it should have the following qualifications: (1) it should be freely soluble in the water that is available for washing in the particular factory, (2) it should remove foreign soil from the skin without damage, (3) it should not contain harsh abrasives or scrubbers, (4) it should not deteriorate or become insect infested on standing, (5) if not used in cake form it should be placed in convenient dispensers through which it will flow easily.

Treatment.—Workers with severe acute occupational dermatitis should be taken off the job and the dermatitis treated with wet dressings of such mild preparations as Burow's solution 1:20, or boric acid solution, until the acute symptoms subside, and then with the mildest types of ointments such as boric acid ointment or zinc ointment, or Lassar's paste.

Mild cases should be provided with protective clothing, proper medication and continued at work with the hope of developing a hyposensitization, or "hardening" which many workers having allergic dermatitis will develop. When such workers get well they can stay on the job without any further trouble.

When the severe cases which are taken off the job get well they should be given another opportunity at their work to see if they have become "hardened." If they again get dermatitis they should be removed from that employment.

Strong medicaments such as mercury, coal tar, sulfur and others should not be used in the treatment of acute occupational dermatitis. They only irritate an already inflamed skin.

Subcutaneous or intravenous injections of so-called desensitizing drugs such as histamine or thiosulfates have no rationale in the treatment of the ordinary case of occupational dermatitis, especially when one considers the fact that more than

80 per cent of all occupational dermatoses are caused by primary skin irritants and not by allergens, and that by far the large majority of workers who develop an allergic occupational dermatitis will also develop a hyposensitization or "hardening" if they are permitted to continue work. For those few workers who have allergic occupational dermatitis and cannot develop a hyposensitization, as is evidence by repeated attacks, the internal administration of the desensitizing chemicals may be tried.

PNEUMATIC RUPTURE OF THE COLON

CASE REPORT

HARRY C. LAPP, M.D.
KANSAS CITY, MISSOURI

In 1904, Stone reported a fatal case of rupture of the bowel produced by air introduced per rectum. In the intervening forty years there have been more than eighty cases of pneumatic rupture of the colon reported in the literature. The majority of these cases appear to be due to pranks while a small percentage are accidental from "dusting off" workers' clothing.

In spite of widespread warning, workers fail to realize the lethal effects of an air blast. Andrews suggested that the thighs, buttocks and perineum form a natural funnel which directs the air to the anus. Compressed gasses enter small apertures readily, and the anal sphincter is easily forced, even though the nozzle may be several inches away.

CASE REPORT

T. C., white, male, aged 37, was admitted to The Independence (Missouri) Sanitarium, June 7, 1944, at 4 p. m. The patient collapsed about 1:30 p. m. immediately after a blast of air had been directed against the seat of his trousers. He remained at the first aid station two hours and was then taken to Dr. Tom Twyman's office. Examination revealed a generally distended and rigid abdomen with some tenderness over the cecum and bladder. The patient had passed a spot of blood-tinged fluid per rectum. A diagnosis of probable rupture of the intestine was made and the patient was transferred to the hospital.

He was seen in consultation at 7 p. m. His temperature was 100.6, pulse 88, respiration 20. The laboratory findings were: white blood count 24,500, with 92 polymorphonuclear (13 stabs), and 8 lymphocytes; red blood count 5,460,000, and hemoglobin 105 per cent. Examination revealed a moderately distended and rigid abdomen with marked tenderness in both lower quadrants. A diagnosis of ruptured colon was made and preparations completed for immediate laparotomy.

Under general anesthesia, a long low left paramedian incision was made. One incomplete laceration of the rectosigmoid; one complete laceration of the sigmoid, and two incomplete lacerations of the transverse colon, just proximal to the splenic flexure, were found. All lacerations were on the antimesenteric border and were from six to eight inches long, involving the longitudinal bands. These lacerations were repaired with a double row of gastrointestinal suture, and a midtransverse colostomy was done. Drains were inserted in both flanks, both lower quadrants and the suprapubic region.

The patient had a rather stormy convalescence. He was given plasma immediately after the operation, penicillin, 100,000 units daily, for ten days, and two transfusions during this period. His temperature rose to 104.8 F. rectally on June 15, and his white blood count reached 35,000 on June 26. He was discharged July 19, 1944, with a slight fecal drainage from the otherwise healed midline incision.

He was readmitted September 17, 1944, for closure of the fecal fistula, situated midway between the umbilicus and pubes.

Roentgen examination on September 18 revealed "Moderate excess of large bowel gas in hepatic, transverse and splenic area. Pelvic colon is gas free. A catheter was inserted into the fistula and directed to the left into the colon. Barium opaque media filled readily up into the splenic area, later filled the pelvic colon and rectum. The catheter entered the upper portion of the pelvic colon where the colon is slightly constricted in a 1½ inch segment. No other deformity of the colon was noted."

The patient was given preoperative sulfasuxadine and, on September 21, the fistula was excised and the defect in the sigmoid closed transversely with a triple row of sutures and covered with omentum. Five grams of sulfanilamide was dusted in the abdomen and the wound closed in layers with two cigarette drains inserted into the pelvis.

The patient had an uneventful convalescence and was discharged, healed, on October 12, 1944.

In the series of cases reported, the injuries have been confined to the large intestine, probably by the ileocecal valve.[17] In approximately 50 per cent of the cases studied experimentally, this valve is competent and increased intracecal pressure draws the two frenula of the valve together, thereby preventing retrograde passage of gas or liquid, and the bowel ruptures with pressure of from 50 to 60 centimeters of water. In several cases it is true that varying amounts of gas were found in the small bowel and, in one, the gallbladder was tensely distended with air.

The sigmoid colon is involved most frequently. Andrews[1] has pointed out that the onrushing air is momentarily trapped by the angulation of this segment. Fecal masses, if present, likewise hinder the air passage. The lower segments are subjected to the initial force of the expanding gas. The rectum is well supported by dense surrounding structures and rarely ruptures except at the rectosigmoid junction, consequently, this force is transmitted to the sigmoid.

Rupture of the colon usually occurs along the longitudinal bands on the antimesenteric border. Tarnowsky[16] has shown that the mucosa suffers maximum injury in crushing accidents, while the serosa is more extensively involved in explosive ones. Many of these cases have incomplete rupture with extensive lacerations of serosa and muscularis only. The mucosa often pouts through the wounds. Rarely does the mucosa perforate in more than one place. Burt[8] pointed out that in the incompletely perforated cases, the bowel is distended, whereas, in the perforated cases there is little, if any, air in the bowel, pneumoperitoneum is present, a fecal odor is evident, and varying degrees of

Presented May 29, 1945, before The Jackson County Medical Society at the Independence Sanitarium, Independence, Missouri.



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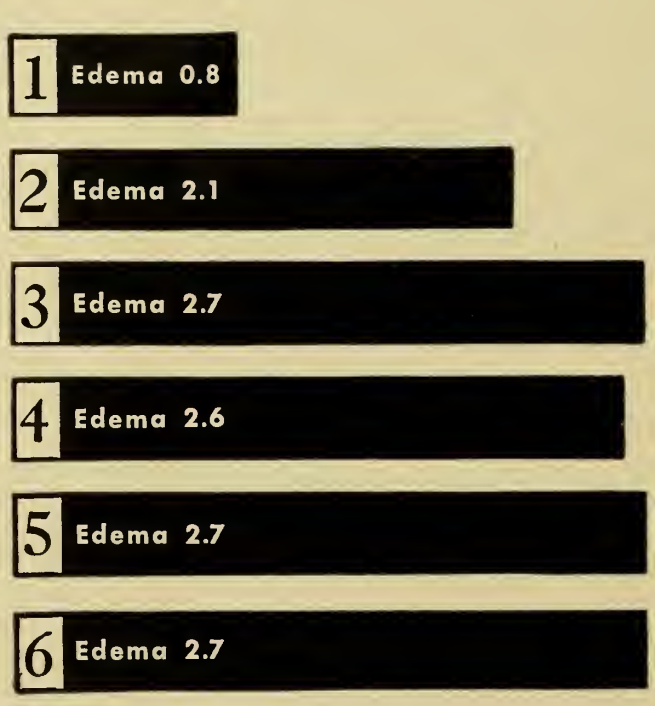
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How irritation varies from *different* cigarettes

Tests made on rabbits' eyes reveal the influence of hygroscopic agents*



CONCLUSION:* Results show that regardless of blend of tobacco, flavoring materials, or method of manufacture, the irritation produced by all ordinary cigarettes is substantially the same, and measurably greater than that caused by PHILIP MORRIS.

CLINICAL CONFIRMATION:** When *smokers* changed to PHILIP MORRIS, substantially every case of irritation of the nose and throat due to smoking cleared completely or definitely improved.

**N. Y. State Journ. Med. 35 No. 11,590* ***Laryngoscope 1935, XLV, No. 2, 149-154*

TO THE PHYSICIAN WHO SMOKES A PIPE: We suggest an unusually fine new blend—COUNTRY DOCTOR PIPE MIXTURE. Made by the same process as used in the manufacture of Philip Morris Cigarettes.

peritoneal contamination, with feces, blood and enemata may be present.

Occasionally no perforation can be found at operation, although pneumoperitoneum is present. Such cases probably have retroperitoneal tears. Andrews noted a case of retroperitoneal splenic flexure perforation, and Jean reported extraperitoneal tears in the colon with escape of air through retroperitoneal fatty tissue into the abdomen.

The pressure required to rupture the colon is surprisingly low. Burt[8] experimentally demonstrated that the outer coats rupture with a pressure of 3.49 pounds per square inch, while 4.07 pounds per square inch produced complete perforation. Pressman,[8] in 1882, produced rupture of the bowel with pressure of 70 millimeters Hg.—only 1.2 pounds per square inch. Andrews, in 1911, found that it required from 6 to 10 pounds per square inch to rupture ox or dog gut. Duval, in 1921, had a case with massive distention without perforation, due to self insufflation by means of a bicycle pump. He felt the lack of rupture was due to slow introduction of air. One patient claimed to have taken an air enema accidentally. Although there was only two pounds pressure, laceration of rectosigmoid occurred. No perforation was noted, but a fecal odor and pneumoperitoneum indicated its existence.

These cases may develop profound shock immediately. If considerable air is introduced, they may fall unconscious. Early in the nineteenth century, in Bridgeport, Connecticut, two iron workers had their clothing pulled off and and an air nozzle pressed against the anus.[14] One died before medical aid could be summoned and the other within a short time.

The abdomen may be distended tensely, globular and tympanitic throughout, with the diaphragm domed and the costal margins retracted by the diaphragmatic pull. Herniae, if present, protrude tensely. The respirations are rapid, shallow and thoracic in type. The heart rate is accelerated but its action is weak. Block, Weisman and Buchbinder reported the heart sounds barely audible. The temperature is subnormal at first but rises rapidly with developing peritonitis. There may be also extensive subcutaneous emphysema.

With massive distention, a decompression should be done prior to laparotomy; otherwise, the abdominal wall may tear excessively following incision.[7]

With complete perforation of the bowel, lavage of the abdomen for gross contamination may be indicated. Repair of the injured gut is usually possible, but resection or exteriorization is occasionally advisable. With multiple injuries or extensive laceration, colostomy is helpful.

Seventy-eight cases of pneumatic rupture of the colon were reviewed. All of these occurred in males between the ages of 12 and 47.

Ten cases of incomplete rupture were reported, five of which were operated upon, with one death. Sixty-eight had complete ruptures of the colon. Of this group, thirty-eight were operated upon with a recovery of twenty-two or thirty-two per cent of the cases with complete perforation.

The high mortality is due to late diagnosis or delay in surgical intervention. Occasionally a moribund case may become operable following a paracentesis abdominis.

A boy, 15, pronounced dead[7] regained consciousness following release of the intraperitoneal pressure by trocar puncture. He was given an anesthetic and cecal lacerations were repaired. The child succumbed on the fourth day, however. Andrews reported a moribund case improving sufficiently with a paracentesis abdominis to be operated upon successfully five hours later.

It is interesting to note that among those cases in which the time interval between injury and operation was given, every case operated upon within six hours recovered (seventeen cases), while only one case operated after that period survived.

With initial shock treatment, early operation and sulfonamide and penicillin therapy, practically all of these cases should be saved. Rectal drip in the presence of laceration of the colon appears ill advised. Parenteral fluids should be given by intravenous or subcutaneous route.

Roentgenograms should be made following recovery to determine bowel distortion or partial obstruction.

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Correction: The title of the article by Sister M. Cyrilla O.S.B., St. Joseph's Hospital, Boonville, in the November issue of THE JOURNAL should have read "Continuous Drip Pentothal Sodium Without Supplementary Anesthesia." Through error the title read "With" instead of "Without."

ENVIRONMENTAL CONTROL OF OCCUPATIONAL DISEASE

J. J. BLOOMFIELD

BETHESDA, MARYLAND

It is gratifying to reflect on the accomplishments in industrial health during the last decade and a half. These accomplishments have been possible through the combined efforts of the physician, industrial hygiene engineer and chemist, toxicologist, nurse, and their coworkers. Sufficient knowledge has been gained pertaining to the toxic properties of various chemicals encountered in industry together with their clinical manifestations on the human body, and to accurate methods of determining their concentrations in the atmosphere that exact evaluations of the workroom environment can now be made. With this information the industrial hygiene engineer is in a position to inaugurate control measures which will maintain a healthful workroom environment.

It is within the province of the medical department to determine the existence of occupational diseases due to the working environment. It is the engineer's responsibility to measure the extent of the hazard and to inaugurate control measures.

With the introduction of many new chemicals of unknown toxicity into industrial processes, the close cooperation of the physician and industrial hygiene engineer is essential if a healthful workroom environment is to be maintained.

It is the purpose of the present discussion to relate the various engineering methods which are employed in the evaluation and control of industrial health hazards.

THE STUDY OF THE WORKROOM ENVIRONMENT

The Preliminary Survey.—One of the functions of an industrial hygiene engineer is to investigate the workroom environment in order to reveal conditions which may affect the health of the worker. Preliminary to making a detailed study of the environment, the engineer must know the nature and scope of the problem. The preliminary survey, in general, entails an appraisal of the sanitary facilities as well as an occupational analysis of the workroom and its inhabitants.[1] If available, morbidity and mortality rates, as well as clinical studies, are analyzed.

In the sanitary survey, conditions are noted which may affect the workroom environment. Items of a general sanitary and hygienic nature, such as provisions for illumination, ventilation, housekeeping, accident prevention and toilet and washroom facilities, as well as exposure to specific poisons and abnormal physical factors, are noted. In the case of an exposure to a specific poison, it is important to note the form of the contaminant, that is, whether it is a dust, fume, vapor, gas or mist. This information is necessary in determining the correct atmospheric sampling procedure to be used during the detailed study and in formulating control measures.

In the occupational analysis, the plant departmental activities, including the nature of the job, number of persons involved, raw materials, and by-products handled, and control measures in effect, are listed. This analysis enables the industrial hygiene engineer to identify the health hazards associated with each job and determine the number of workers involved.

If morbidity and mortality rates and clinical studies are available for the various departments of the plant under investigation, an analysis of these data may reveal locations in the plant where the workroom environment is especially harmful.

The Detailed Study.—In order to determine the presence or absence of a health hazard in a workroom environment, it is necessary to obtain precise data on the nature and extent of materials or conditions present in the workroom atmosphere.

The various methods for collecting atmospheric samples and of analyzing them for specific toxic substances have been fairly well standardized, and they have a high degree of accuracy. With present-day instruments and methods, it is possible for the industrial hygiene engineer to obtain data on the extent of workroom contamination from any source of exposure. However, several factors other than just the amount of contaminant liberated into the air from a point source may influence the extent of the exposure in the general workroom air. Some of the factors which must be considered are the nearness of the workers to the source of the exposure, natural ventilation through open doors and windows, poor housekeeping, and the amount of time the workers spend in the contaminated area. Thus, it is easy to see that only qualified industrial hygiene personnel should be given the responsibility of evaluating the hazards in a workroom environment.

The next step, after the extent of the exposure has been found, is to determine whether or not a health hazard exists. Where a maximum allowable concentration has been established for the contaminant under investigation, this merely necessitates direct comparison of the workers' weighted exposure with the maximum allowable concentration value.

Often a maximum allowable concentration has not been established for the contaminant under investigation. In such a case, it may be possible to establish such a value by making clinical studies concurrently with the detailed engineering study. An analysis of the data may reveal the amounts of the toxic material which may be tolerated with safety.

The detailed study also enables the industrial hygiene engineer to determine the efficiency of any device which may have been installed for controlling the hazard.

THE CONTROL OF INDUSTRIAL HEALTH HAZARDS

The control of industrial health hazards necessitates close cooperation between the physician and

[1] Senior Sanitary Engineer, Industrial Hygiene Division, Bureau of State Services, U. S. Public Health Service, Bethesda, Maryland.



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Vollmer, E.S.: Use of the Benzedrine Inhaler for Children, Arch. Otolaryng. 26:91.



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the industrial hygiene engineer. The physician, through physical examination of the worker, recognizes the inception or existence of diseases due to the working environment. The engineer, after measuring the extent of the exposure and determining that a health hazard exists, establishes methods for controlling the hazard. The method used to control the hazard will depend upon the specific conditions encountered in the plant. In general, the following five methods are used for controlling industrial health hazards: (1) substitution of a nontoxic material for the toxic one; (2) enclosure of the process; (3) wet methods in cases of dusty operations; (4) mechanical ventilation; and (5) respiratory protection.

The first three methods have only a limited application. They may be accomplished, however, with little cost, and should receive serious consideration.

Substitution.—In some cases it may be possible to eliminate or reduce a health hazard by substituting a nontoxic or less toxic material for the toxic one. This method of control is not applicable in processes in which the specific toxic material is an essential ingredient or in which the finished product is itself toxic.

Some examples in which this method of control is applicable are: the use of artificial nontoxic abrasives in the place of sand in abrasive cleaning operations,[2] the use of a nonmercurial carroting solution in the manufacture of felt hats,[3] the use of less toxic solvents in decreasing operations,[4] and the use of xylol and toluol to replace benzol when the use of an aromatic hydrocarbon is necessary.

Enclosure.—Many industrial operations which liberate toxic materials into the workroom atmosphere are of a type which readily adapt themselves to this method of control. The amount of contaminant liberated into the air can be reduced greatly by enclosing the operation. In cases in which highly toxic materials are handled, it may be necessary to operate the enclosure under negative pressure. The enclosure method of controlling health hazards is especially applicable to dusty operations. The modern sandblasting cabinets and the automatic type degreasers are examples of enclosed operations. Screening and blending operations often adapt themselves to this method of control.

Wet Process.—In operations in which the contaminant is liberated as a dust, the substitution of a wet for a dry process may reduce greatly the amount of contaminant liberated into the air. Usually, however, it is necessary to use local exhaust ventilation in conjunction with the wet process to control the hazards adequately. This method of control is applicable to sweeping, grinding, drilling, loading and similar type operations.[5]

Mechanical Ventilation.—Mechanical ventilation is by far the most used, and often the most abused, method of controlling health hazards. It is not within the scope of this discussion to give basic information on the design of ventilation systems, but merely to point out the importance of mechanical ventilation as a method of controlling health hazards.

The responsibility for the design and installation of ventilation systems must rest with experienced ventilation engineers if the systems are to function properly. Sufficient basic engineering data are now available so that it is no longer necessary to design and install ventilation systems on a trial and error method.[6, 7, 8, 9] Many well-designed ventilation units, such as spray paint booths, are now commercially available.

In general, there are two main types of mechanical ventilation, that is, general and local exhaust ventilation. Each type has its advantage, depending on the specific conditions encountered. Wherever possible, local exhaust ventilation is the method of choice since it removes the contaminant at its source and prevents it from escaping into the room air. Local exhaust ventilation offers a more positive method for controlling the hazard and it is often the least expensive type of ventilation.

Respiratory Protection.—Primary consideration should be given to methods which will prevent excessive contamination of the workroom atmosphere. However, situations arise in which control methods other than personal respiratory protection are either impractical or ineffective. An example of this is where the exposure is intermittent and of short duration, and where only a few workers are affected. Precaution should be taken to assure that the respiratory protective device gives protection against the specific material encountered. Only respirators approved by the United States Bureau of Mines should be used.[10] When respirators are used, a routine schedule should be inaugurated for the proper fitting, maintenance and cleaning of the respirators.[11]

SUMMARY

The science of industrial health has progressed sufficiently until it is no longer necessary to use guesswork tactics in maintaining a healthful working environment.

The maintenance of a healthful working environmentel is the joint responsibility of the physician and the industrial hygiene engineer. It is possible through detailed environmental and clinical studies to determine any injurious effects the workroom environment may have on the workers. With a knowledge of the extent of the hazard and the toxicity of the material encountered, the industrial hygiene engineer is in a position to inaugurate appropriate control measures.

However, the responsibility of the physician and engineer does not end at this point. A constant study of the workroom environment, correlated with clinical tests on the workers, is essential in assuring that the control measures instituted are effective and that the working environment is healthful.

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GENERAL PROGRAM OF THE INDUSTRIAL HYGIENE SERVICES IN MISSOURI

A. LINK KOVEN, M.D.
AND
W. SCOTT JOHNSON
JEFFERSON CITY, MISSOURI

The purpose of the industrial hygiene services as part of the general state health program is to protect and promote the health of the workers (1) in working environments that present health hazards, and (2) assist in control of general health problems of the worker not specifically associated with working conditions.

BRIEF HISTORY OF THE DEVELOPMENT OF OFFICIAL INDUSTRIAL HYGIENE WORK IN MISSOURI

Occupational morbidity has not been reported adequately to permit an evaluation of industrial health problems. To overcome this lack of data, a plan was conceived and executed in St. Louis in 1934 whereby the potential health hazards existing in the plants could be enumerated. This plan consisted of a personal survey of 630 plants in St. Louis by the St. Louis City Health Department and the U. S. Health Service, the results of which have been published in U. S. Public Health Service Bulletin No. 216. The data collected included welfare and medical services available to employees and the potential health hazards for the different industries or service groups by occupations and materials to which the workers were exposed.

On the basis of this work, an industrial hygiene service for St. Louis was established in 1936, financed by the State Board of Health with Social Security funds. The survey has served as the basis for the industrial hygiene service for industries in that city since that time.

Statewide administration of industrial hygiene was begun in 1937 by the Division of Public Health Engineering and Industrial Hygiene, under which it continues to function.

Chief, Industrial Hygiene Service, Division of Public Health Engineering and Industrial Hygiene.
Chief, Public Health Engineer, Division of Public Health Engineering and Industrial Hygiene.

In February 1939, the St. Louis County Health Commissioner, upon the recommendation of the State Board of Health, added to his staff a full-time engineer for industrial hygiene service in the county. A survey of the industries in St. Louis County has been completed in cooperation with personnel from the central office.

In 1940, upon the recommendations of the State Board of Health, a Kansas City Metropolitan Area Industrial Hygiene Service was established, including Kansas City, Jackson County and Clay County.

Two laboratories, one in St. Louis, functioning as a part of the Division of Laboratories, and the other in the central office of the State Board of Health at Jefferson City, have been fully equipped with apparatus for the determination of dusts, fumes, vapors and mists. Partially equipped laboratories are available in Kansas City and St. Louis County.

Since the beginning of the preparation of this country to enter the war the emphasis of all work has been on those industries having contracts to manufacture war materials.

ADMINISTRATION

Administratively, the general development, guidance and supervision of the industrial hygiene program within the state is the responsibility of the State Board of Health at the state level. Valuable consultation services are made available from the U. S. Public Health Service to the State Board of Health.

In accordance with established policies, the responsibility for the field services are being integrated as rapidly as possible into established local, county and city health departments. Under this program, a small but complete specialized industrial hygiene service is supported in the central office of the State Board of Health at Jefferson City, which will maintain general supervision over the statewide activities and afford special services of a technical, educational and research nature. The routine activities and personnel to develop these in immediate contact with the industrial health problems are being established as part of the activities of local health departments where industry is concentrated. Due to lack of local health personnel, the local work outside of the metropolitan areas of Kansas City and St. Louis is at the present time being carried on by the state service.

Fundamentally, the program has been approached as a cooperative technical service to industry and other official and nonofficial agencies or organizations concerned with industrial hygiene problems.

GENERAL FUNCTIONS

Briefly, the services offered on a state and local level include the following:

1. Evaluation of the industrial environment and recommendations regarding needed correction of those conditions found to be detrimental to the health of the employees.
2. Advice and consultation to management, med-

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ical supervisors, safety engineers and industrial nurses as to the relative toxicity of materials or processes, and especially new materials prior to their introduction into industry and the development of effective plant health programs.

3. Consultant services to medical supervisors, industrial nurses, private physicians, compensation authorities, labor departments and other state agencies regarding illnesses affecting workers.

4. Provision of necessary laboratory services, whether clinical, chemical or physical in nature.

5. Assistance in developing, maintaining and analyzing absenteeism records and occupational disease reporting.

6. Development of an educational program dealing with matters of industrial health for the benefit of employer and employee groups and organized medicine.

7. Promotion of adult hygiene programs through industry.

ACTIVITIES

In developing the general functions indicated, the following activities are undertaken:

1. Complete surveys of industry on request or self-initiated to evaluate the health hazards and the control and preventive measures being provided. This includes:

a. Quantitative studies of operations where hazardous dusts, fumes, vapors, gases or mists, defective illumination, excessive humidities, temperatures or pressures or inadequate ventilation exist, to determine the exposure and appraise the effect on the health of the workers.

b. Assist in the elimination of specific hazards in plants in which studies have indicated their existence by reviewing plans for the proposed control devices before installation, and checking their effectiveness with quanitative field determinations after they have been put into operation.

c. The dissemination of information of toxic industrial materials and products, and on practical methods for their control.

d. The promotion of physical and oral examinations in industry, and the development of adequate medical, dental and nursing services in industry.

e. The promotion of measures for the control of venereal disease, tuberculosis and other communicable diseases among industrial workers.

2. Epidemiology (as applied to industrial hygiene) includes the collection and analyses of data relative to the incidence of disabling illness and absenteeism. More complete and uniform reporting should result from active planning and direction of the industrial hygiene service. The study of where illness develops and its frequency will serve as a direct basis for planning activities in the field of prevention where the greatest need exists. Greater success in this endeavor may be expected when state health departments are prepared through adequate budgets and trained staffs to assist in preventing such illnesses. Better reporting of occupational diseases will make it possible for cases to be followed up and epidemiologic studies made so that control devices may be provided to eliminate the cause of the disease. Accurate and complete reporting of all absenteeism regardless of its nature, so that the morbidity and other causes for lost time in industry may be ascertained and health programs may be devised to reduce absenteeism to a minimum. The following chief sources of such data are listed:

a. State and municipal departments, bureaus or division of vital statistics and epidemiology.

b. Reports from physicians supervising health of industrial groups and from private physicians treating illness and injuries associated with industrial exposure.

c. Reports from compensation commissions considering claims for illness and injury alleged to have developed because of an industrial exposure.

d. Reports from sick benefit associations whose membership is chiefly or wholly limited to occupational groups.

e. Reports from insurance carriers.

f. Reports from the U. S. Public Health Service and other state divisions of industrial hygiene.

3. Educational activities have disclosed instances in which unnecessary hysteria and misunderstanding have resulted from honest efforts of organizations and agencies attempting to develop educational programs in the field of industrial health. When the groups are instructed by trained personnel there is less likelihood of misunderstandings and unnecessary confusion resulting.

a. Adequate undergraduate and postgraduate training in medical, nursing and engineering aspects of industrial hygiene in universities and professional colleges are being constantly developed. Frequently the industrial hygiene personnel of the state health department has given lectures to medical schools as well as to various organizations such as the Safety Council and Industrial Nurses Club.

b. There is need for stressing in courses offered by vocational training schools the importance of providing healthy industrial environment in guarding against industrial poisons. State health department's personnel has assisted in the development of programs effective during this academic and apprentice training period. Educational material, pamphlets, films and posters also have supplemented these lectures, not only by state personnel, but also by the assistance of local health departments and physicians in the community in the conduct of this work. Particularly in large industrial establishments effective programs of employee training in personal hygiene and plant sanitation are needed. The State Health Department assists management and employee groups in developing and promoting such programs.

c. General sanitary inspectors in state and local health and labor departments have received lectures by industrial hygiene personnel to render valuable assistance in this field.

d. The State Board of Health has assisted local and state medical and other professional societies

in the development and conduct of programs designed to aid the practicing physicians to better fit themselves to give adequate attention to the control of occupational diseases, prevention, early diagnosis and treatment.

e. The State Industrial Hygiene Service, in order to bring the latest information and practices, as well as its own educational projects to industry, has established a news letter for management (medical. nursing, engineering, safety and personnel department) consumption. Timely pamphlets, posters and articles in plant newspapers are constantly supplied by the State Industrial Hygiene Division for employee consumption. The development of a public health educational program through the medium of moving pictures, posters and pamphlets is designed to make the employee and his family more health conscious.

4. Legal Authority and the specific state statutes controlling industrial hazards at the present time come under the jurisdiction of the State Labor Department and the Bureau of Mines. Under its general broad legal powers the State Board of Health could if necessary enact regulations concerning any industrial condition that was detrimental to health. Cities by ordinance have in a few cases established legal control over certain industrial hazards and this type of local control could be advantageously expanded.

The State Board of Health has begun, and is constantly expanding, its activities toward developing and promulgating standard practices of control and maximum allowable concentration of substances detrimental to public health encountered in industrial practices.

INDUSTRIAL HEALTH ACTIVITIES IN ST. LOUIS

AS CARRIED ON AND PROMOTED BY THE INDUSTRIAL HYGIENE SERVICE, HEALTH DIVISION, DEPARTMENT OF PUBLIC WELFARE

ROBERT M. BROWN, Supervisor
ST. LOUIS

Industrial hygiene as an official service of the St. Louis Health Division was inaugurated in May 1936 as an outgrowth of the Federal Social Security Program. Similar services also were being set up at that time in many state and local health agencies. The St. Louis unit, as it developed for a number of years, was essentially an engineering function carried on as a portion of the Health Division's environmental sanitation program. In beginning its functioning the Service was fortunate in having data concerning the industrial hygiene problem in St. Louis which had been assembled in a survey by the U. S. Public Health Service and the Civil Works Administration. (The findings of the survey were published as Public Health Bulletin No. 216 of the U. S. Public Health Service.) Based on this information and a first-hand knowledge of industrial hygiene problems in St. Louis, a number of industry-wide surveys were conducted to study the environmental hazards associated with particular industries. These studies consisted of an evaluation of silica dust exposures in ferrous and nonferrous foundries; health hazards in the electroplating industry; the exposure of workers to lead dust and fume in lead-using industries, and the hazard to workers from carbon monoxide in large garages. During this period studies also were conducted in individual establishments of many varieties for the purpose of evaluating their peculiar hazards. This basic program, together with rather numerous promotional and educational activities, was followed for approximately five years, or until the national emergency period developed.

With the advent of the national preparedness program and the drive for all-out industrial production to enable the nation to get ready for war, there was a nation-wide effort, led by the U. S. Public Health Service, to utilize in this effort the many tangible benefits of industrial health activities. In agreement with this purpose a readjustment of the St. Louis program was made to produce conformance with the national effort. A plan was devised by the Public Health Service through which the U. S. Department of Labor would notify the various industrial hygiene units of contracts awarded under the Public Contracts Act in the area covered by each unit. These plants were then approached and acquainted with the service which could be rendered them in promoting and protecting the health of their employees. Comprehensive appraisal surveys were made of each plant environment and were followed by engineering evaluations of the potential hazards and toxic exposures disclosed. A complete report of all findings was rendered to the plant together with recommendations for any control measures necessary. Plants so covered were then considered to be "reasonably serviced," that is, all hazards of consequence existing at the time of the survey were evaluated and recommendations for their control made. However, additional or follow-up investigations often were made subsequently, many times at the request of plant management, to evaluate hazards which developed later.

Although a large percentage of the nearly 3,000 manufacturing establishments in St. Louis were engaged in essential war work, according to the notices received from the U. S. Department of Labor 484 plants were found to be operating under direct war contract. It was toward this important group that the program was directed primarily. Of these plants, 383 or 79 per cent, employing at the time of the surveys, 73,800 workers, were "reasonably serviced." Six plants employing 39,500 workers were given partial coverage. With the ending of hostilities, the remaining 95 plants not yet covered were scheduled for servicing within the next six months' period. During the approximate four years of the national emergency period an average of nearly 100 direct war contract plants were serv-

iced per year. In addition the Service made surveys and related studies of many other plants and carried on promotional and health educational efforts as extensively as could be done within the limited resources of funds and personnel available.

Before discussing the Service's program for the immediate future, an important development occurring during the latter part of the war period should be described. As was previously mentioned, for a number of years the program was essentially engineering in nature. When an occasional need arose for the performing of medical activities through the Service, they were provided by physicians of other Sections of the Health Division. During the latter part of 1943, however, arrangements were made whereby the services of the industrial hygiene physician of the Missouri State Board of Health could be utilized on a part-time basis. With such service was begun the development of an industrial hygiene medical function as a long desired addition to the Service. This arrangement was continued until the early fall of 1944, at which time a full-time physician was acquired for the industrial hygiene medical work of the unit. This addition to the staff has produced a broadening of the Service's work, which it is expected will be carried still further in the immediate future. Two noteworthy achievements of this function of the program have been the devising of plans through which the community venereal disease and tuberculosis control efforts are extended directly to industrial workers through their employment. The tuberculosis control program has been designed to fit into the community effort carried on through the health centers of the city. In addition a cooperative program was undertaken with the St. Louis Tuberculosis and Health Society through which portable small film roentgen ray equipment is used in screening employees while they are at their place of work.

With the ending of the war the planned or "self-initiated" portion of the program followed by the Service immediately became obsolete since the "war production" effort was terminated. It then became necessary to formulate new plans for the postwar period. Fortunately, the need for this had been foreseen for several months and a plan was largely crystallized when the need for it developed. In making plans for the future it has for a long time been the desire of the Service to extend the scope of the industrial hygiene program as much as possible. It is the present hope that this expansion can be accomplished, at least in part, within the near future by enlarging the staff and the facilities of the Service. With these considerations in mind and with past experience being used to temper future hopes, the following plan for the postwar period has been developed. This is the "self-initiated" portion of a three phase program—the other phases consisting of activities carried on as a result of reports of occupational morbidity and as a result of requests for service.

I. A listing of plants for complete environmental and medical surveys is to be assembled as soon as that can be accomplished. Selection of plants for



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precedence of service will be made according to the following formula:

A. Where practical and reasonable, surveys may be conducted according to industry group, choosing industries by the method (in order of relative weight):

1. Knowledge of severity of occupational hazards in an industry.
   a. Obtained from an analysis of work previously conducted.
   b. Obtained from morbidity reports.
   c. Obtained from any other information available.
2. Knowledge of controls already established by an industry.
3. Size of employee group involved. For example: lead using industries, silica exposure industries, industries involving chemical processing, dermatitis producing industries.

B. In many instances relatively severe hazards will exist in various miscellaneous plants without regard to industry grouping. Such plants will be scheduled for precedence of servicing according to the severity of the hazards involved and irrespective of the industry grouping consideration.

In executing this function I in terms of the overall industrial hygiene program, it will be understood that precedence for this type of work will generally be:

A. Surveys conducted as a result of morbidity reports from physicians.

B. Surveys conducted as a result of requests for service.

C. Self-initiated activities.

This procedure should not be construed as minimizing the importance of self-initiated activities which, judged on the basis of past experience, will continue to produce the major portion of our accomplishments. Rather this deference will be made (usually) from the standpoint of promoting and developing the use of the Service in the community.

The execution of function I will include a complete engineering evaluation of employee exposures to hazardous substances and the effectiveness of control measures provided. Appraisal procedures, of a medical nature will also be utilized whenever the need for them is indicated.

II. Make medical and nursing studies of plants which employ full time nurses and full or part time physicians, attempting to evaluate the quantitative industrial medical service given employees. These studies should have as their objective the promoting of a uniform (minimum) standard of such service in industry.

III. Promote, through advertising, personal contact work and any other available means, a service of consultation with regard to health problems associated with reconversion to peacetime manufacturing. Ascertain and evaluate, insofar as it is possible for us to do so, the use in the community of new products, processes developed during the course of the war, and the hazards inherent in their usage.

IV. Promote group small-plant medical and nursing services according to a community plan, working with organized medical and nursing groups, the Chamber of Commerce, industrial associations and labor to stimulate interest and unified cooperation.

V. Attempt to stimulate, through all the means at our disposal, the reporting of occupational morbidity by the physicians of our community. The industries or occupations revealed by follow-up of these reports as the sources or causes of the morbidity would then be placed high on our priority list for detailed investigation.

VI. Extend the coverage, as far as the industrial population is concerned, of the community programs for the control of tuberculosis, the venereal diseases and other outstanding adult health problems.

VII. Continue, and expand if possible, the inspection of, and consultation regarding, in-plant feeding facilities as follows:

A. Encourage plants which began in-plant feeding during the war to continue such service.

B. Work to improve the service in plants with employee feeding facilities; also to improve equipment and other facilities where the need for such is indicated.

C. Attempt to promote employee feeding facilities in plants which are sufficiently large for this service but at present do not have it; ascertain desirability of promoting this service on a plant group basis.

D. Make nutrition surveys of all in-plant feeding facilities. Develop our in-plant feeding consultation service insofar as we are able to do so with the personnel now available to us.

VIII. The addition to the staff of an industrial hygiene consulting nurse is desired. In the event that such a worker is obtained, it is intended that her activities will be integrated functionally in the program as it is outlined with only such minor adaptations as may be required for practical working. The activities of a nurse will correlate with, and supplement logically, many phases of our contemplated postwar program tying in most advantageously with those listed under numbers II and IV.

It will have been noted in reviewing the program outline that several of the items require further development in order to define their scope and the manner in which they are to be applied. This is now being done. With a program as comprehensive as this, however, and with the small number of personnel available to execute it, it will be necessary to develop the phases individually or several at a time until all are covered. Every effort will be made, nevertheless, to integrate all of the functions which require such treatment.

At the present time a beginning has been made in carrying out the postwar program. To execute it effectively will require the adding of personnel to the staff and the securing of greater financial support for this phase of the health program. It is hopefully expected that the postwar period will present an opportunity for the expanding of industrial health activities to a greater degree than has been accomplished up to this time. Through this

the Service looks forward to carrying on a program which will be of greater and more lasting benefit to the community. The returns already secured have more than justified the investment which has been made in industrial hygiene in St. Louis. It is logical, on the same basis, to expect that a further expansion of this important work will produce even greater returns. The Industrial Hygiene Service of the Health Division is entering the postwar period with confidence and with expectation that it will render a much needed and important service through its program.

SPECIAL ARTICLE

MEDICAL PROBLEMS OF THE VETERANS ADMINISTRATION

MAJOR GENERAL PAUL R. HAWLEY
WASHINGTON, D. C.

In undertaking the reorganization of the Medical Service of the Veterans Administration, the Acting Surgeon General is anxious to have the approval and support of the medical profession; only in this way can the program succeed.

While, so far as the patient is concerned, medical care is one complete function, it must be divided administratively into his hospitalization and his outpatient treatment. In the majority of cases, perhaps, complete medical care is furnished by outpatient treatment; but there are many other cases in which outpatient treatment is either preliminary to hospitalization or supplements the care given in hospitals.

It is impossible to undertake the medical care of the veteran with a permanent, full time, paid corps of medical persons. That was tried when the proportion of doctors among the population was higher than it is now and perhaps higher than it will be for the next ten or fifteen years. It failed for several reasons: first, because it was impossible to get the proper caliber of medical personnel for the compensation given them; second, because hospitals were built in inaccessible places, where their staffs lost touch with the advance in medicine, no provision having been made for graduate training and for keeping these physicians in touch with medicine and surgery; third, because no inducement was given to physicians who entered the service to improve themselves of their own volition.

There are but few physicians in the Veterans Administration who have been certified by a specialty board. Occasionally, however, one is encountered; and since he has accomplished this distinction without the encouragement of his service, he is to be admired.

General Bradley has elevated the status of the Medical Service to that of a major service, responsible directly to the Administrator of Veterans' Affairs. He is fully alive to the great medical problems confronting his administration and will support every effort to improve his medical service, including encouragement of professional study.

The requirement at the present time is for about 3,600 physicians. There are in the administration 2,300, of whom 1,700 are on loan from the Army and Navy. If the entire load of only our hospitals and of physical examinations is to be carried by full-time physicians, 1,500 more are needed. The large majority of those lent by the Army and Navy are unhappy and dissatisfied, for very evident reasons. Obviously, therefore, the situation is critical. It is impossible to weather this storm with the means at our disposal at the moment.

In asking the assistance of the civilian profession, the present administration wants to do everything it can to make the service that they will give worth while to them individually and to the profession as a whole. The pay offered the physician probably will not be as much as his service would command outside. However, a study is being made of the scale of salaries and fees, with the idea of revising them upward so that they will more nearly approach what the services are worth. If it is objectionable to the civilian profession to become an employee of the hospital, then we must have two accounts—one for the hospital and one for the physician.

Most of the leaders in the profession are interested in teaching, but the facilities for graduate training of physicians do not seem to be adequate in certain places in the country; so the administration would like to have close liaison with teaching institutions.

Over and above the financial return and the opportunities for teaching, there is little to offer the well qualified physician whom it is hoped to interest. Consequently the administration no doubt will have to appeal to the unselfishness of the profession, realizing that it will contribute more than it receives and asking it to charge the deficit to a fine public service rendered in the care of the veteran.

In the outpatient care—and by that term is meant any care or treatment given to the veteran who is not actually admitted to a hospital—it is hoped to get something started very rapidly.

Care must be used in appointing as consultants only those physicians who are highly regarded by the rest of the profession so that these appointments will be a mark of quality. We want no one to be ashamed to say that he has been appointed a consultant by the Veterans Administration. It is proposed to extend this principle to the small communities where physicians must be designated to take the outpatient service. It is a matter of law that the veteran go to a veterans' physician, but there is nothing in the law to say that all qualified physicians in a community cannot be designated to take care of veterans.

The idea should be conveyed even to the smallest component society of the American Medical Association that here is a public duty which should be considered seriously, and that the local society must bear this in mind in its recommendations.

In regard to clinics for neuropsychiatric patients:

Reprinted from *The Journal of the American Medical Association*, October 13, 1945.



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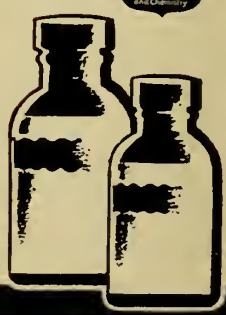
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There are not enough psychiatrists, especially in the smaller communities, to establish mental hygiene clinics. Contact has been made with the American Psychiatric Society to try to offer some facilities for a program for the training of doctors in this specialty. In the smaller community the administration may have to depend, not on fully qualified psychiatrists, but on family physicians who are given an opportunity to take short courses in psychiatry.

The paper work, that is, the filling out of forms connected with the care of the veteran, seems to frighten the physician. Perhaps a committee could simplify these procedures so as to make it less burdensome for the man who undertakes the work.

Another great obstacle is the policy, fostered and encouraged by several groups interested in the veteran, that the most essential thing in the care of the veteran is to keep him close to home. When one speaks of moving a veteran away from his home to give him better care, one encounters strenuous objection. This would make specialized care of the veteran impossible because there are not enough specialists in many areas to give the kind of care which the veterans should have. Perhaps the best person to reeducate the family on this is the family physician. He can do much to persuade the family to consent to moving the veteran for better specialized care.

General Bradley asked Congress to postpone action on the bill to create a permanent medical corps for the Veterans Administration until he could study it, and the draft has been completely rewritten. At first I was opposed to any permanent corps, but I have had to compromise my own thoughts in the matter. The Veterans Administration has thousands of beds in inaccessible places which it will have to use, and it will no doubt have to have a permanent corps to staff these hospitals. It is hoped that such mistakes in locations will not be repeated. Then there is a certain kind of administrative work on rating boards for which it is almost impossible to procure part time service. Full time people for this work probably will be necessary, but the corps will not be anywhere near large enough to carry the entire veterans' load, and no attempt will be made to build up a large permanent organization.

The general provisions of this bill have been limited to medical people, including only one small corps of allied professional people, such as the Public Health Service has. Pathologists, chemists and research workers may be required in addition to physicians, dentists, nurses, physical therapists, occupational therapists and a small group of pharmacists that have been included.

The promotion of people in the allied professions and the allocation of grades to them have been made comparable to the amount of training it takes to qualify them for their profession. The scale of pay and retirement privileges are the same as for the Army, the Navy and the Public Health Service. One additional feature has been added: When an officer has been certified by one of the specialty boards and has been rated as a specialist by the Surgeon General, his pay shall be increased 25 per cent over that to which his grade and length of service would entitle him. This is to encourage professional advancement.

One great trouble with the Veterans Administration has been its centralization. The administrator is now decentralizing the administration to thirteen districts. There must be a medical staff in each district. There the requirement is for full time people. The principal duties of the medical staff of the districts is the supervision of the medical service, liaison with the civilian profession and appointment of proper consultants. This phase of the reorganization will probably take about two years. One district at a time will be established.

I should like to see veterans' hospitals built in such a way that, as their need for the care of veterans decreases, they can be fitted into the need of the people as a whole. In the years to come they could perhaps be turned over to communities. I am in favor of the care of the veterans in the existing civilian institutions to the greatest possible extent.

ABSTRACTS AND DIGESTS

TUBERCULOSIS ABSTRACTS

A REVIEW FOR PHYSICIANS

Vol. XVIII December, 1945 No. 12

CHEMOTHERAPY IN TUBERCULOSIS

Efforts to develop an effective medicinal treatment for tuberculosis have undoubtedly been under way ever since this great human pestilence was recognized. The writings of ancient physicians contain repeated reference to herbs and other natural products alleged to be of therapeutic value. When Ehrlich and his contemporaries learned of the value of metallic salts in treating syphilis and parasitic diseases, hope was revived that some such preparation might be of aid in treating tuberculosis. The use of gold salts in the treatment of tuberculosis appears to have been an outgrowth of this line of research, but treatment with these has not withstood the test of time.

The unprecedented success of the sulfa drugs in treatment of many bacterial diseases of man renewed hope that tuberculosis might eventually yield to some such drug, and experiments on guinea pigs have given definite support to these hopes.

In 1939 and 1940 the sulfonamide drugs were shown to have some retarding effect on the rate of development of tuberculosis of guinea pigs, but in no instance did the drugs actually arrest the disease.

The drugs of the sulfone series (promin, diasone and promizole) were the first preparations to succeed in actually arresting tuberculosis in the highly susceptible guinea pig. This led to high hopes that

sulfone drugs might be of value in the treatment of human tuberculosis. Several hundred tuberculosis patients have now received treatment with these drugs. Experience has tempered the early enthusiastic hopes of some physicians.

Most sulfone drugs, unfortunately, have a much more toxic effect on human beings than on guinea pigs. It is suspected that some sulfone drugs are altered in the human body and become ineffective. The possibility that sulfone drugs may be of aid in treatment of certain unusual varieties of human tuberculosis has not been excluded, but no definite place has been found for these drugs in treatment of the usual types of tuberculosis. The use of sulfone drugs under any circumstances has not progressed beyond the experimental stages.

The only sulfone drug which has been approved by the Federal Drugs Administration for sale is promin. This is available in jelly form for application on the surface of external tuberculous lesions. The effectiveness of promin has not been completely established even for this special use.

The amazing success of penicillin in treatment of several infectious diseases again aroused hopes that this or a similar antibiotic substance might be developed which would be effective against tuberculosis. Penicillin itself appears to have no effect on tuberculosis in guinea pigs or in man, but many other substances may be extracted from living micro-organisms which can suppress the growth of bacteria which produce disease.

Of these only streptothricin and streptymycin need now be considered. Streptothricin and streptomycin are both derived from soil-inhabiting fungi (*Actinomyces lavendulae* and *Actinomyces griseus*). Both restrain the growth of tubercle bacilli in the test tube. Streptothricin is somewhat toxic to guinea pigs and does not restrain the development of tuberculosis in these animals.

Streptomycin is well tolerated by guinea pigs, and extensive investigation has shown that it does inhibit in them the growth of experimental tuberculosis. In a third of the guinea pigs treated streptomycin apparently will eradicate advanced tuberculosis. In the other two thirds treatment with streptomycin will bring the disease to a stage that can be regarded as arrested.

Adequate study of streptomycin in treatment of human tuberculosis remains to be done. Certain obstacles lie in the path of further progress along this line.

Many students of tuberculosis believe that results comparable to those noted in acute diseases, such as pneumonia, should not be anticipated in drug therapy of as generally chronic a condition as tuberculosis. In any disease successful treatment with drugs merely permits recovery by natural processes, and the promptness of such recovery depends on the nature of the disease process and the defensive powers of the patient.

Tuberculosis, however, by virtue of its usual chronicity produces destructive changes in tissues. Healing or repair of these tissues is exceedingly slow. Furthermore, in extensive tuberculosis of the lungs the destructive changes offer serious mechanical handicaps to healing. When such mechanical handicaps exist a corrective mechanical type of treatment, such as the conventional surgical collapse procedures, is used rather than treatment with a drug. The physician therefore does not hope for any alternative chemical remedy when surgery is indicated. Rest therapy, usually in the planned environment of a sanatorium, will probably remain the fundamental remedy for tuberculosis. No drug now available is likely to supplant rest completely. At this time it would appear foolish to discard the known benefits of rest treatment for the uncertainties of treatment with a new drug.

Patients are frequently eager to receive newly developed drugs even when the hope of benefit is remote. Usually it is impossible to secure such drugs under these circumstances due to present-day legal restrictions designed to prevent unwise distribution of drugs whose safety and efficacy have not been determined.

The distribution of new drugs for the necessary preliminary, laboratory and clinical trials is entirely in the hands of the manufacturers. Investigators receiving drugs for this purpose must have proper facilities to carry out the contemplated research accurately and safely. They also may be called on to account for all of the drug supplied and to submit complete reports of their researches which eventually are forwarded to the Federal Security Agency. Obviously, it is impossible for research workers to share their supplies of new drugs before the necessary research is completed.

The channels through which information about new scientific developments flows are direct and dependable. When a research worker has completed a project, he submits a report to the editors of one of the many medical and scientific journals, and usually publication of the results of his work follows within a few months. This enables other research workers and physicians to utilize promptly any of these new facts either in treatment of patients or in the development of new scientific information. The prompt publication of results is an ethical responsibility of the scientist to aid others engaged in similar problems. No one need fear that he will be denied any valuable secret remedy.

Newspaper reporters and authors of magazine articles recognize the news value of scientific discoveries. Occasionally they use sources of information less authoritative than those of established medical journals, to the chagrin of research workers and to the confusion of patients. Human lives may be lost needlessly if patients who have tuberculosis choose to forsake or refuse well-established methods of treatment in the hope of receiving remedies inadequately tried or of unproved effectiveness.

Chemotherapy in Tuberculosis, H. C. Hinshaw, M.D., and William H. Feldman, D.V.M., The NTA Bulletin, October, 1945.



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1. Pilcher, Am. Jour. Pharm., 64:1, 1917.

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DECEMBER, 1945

EDITORIALS

BIENNIAL REGISTRATION

Each physician practicing in Missouri is required to register biennially with the State Board of Health. This should be done before December 31 of the year preceding the period for which the physician is registering. Therefore, registration for 1946-1947 should be in the hands of the State Board of Health, Jefferson City, prior to December 31, 1945. The fee for each biennial period is $1.00. Physicians who have been in service but who resume practice before the end of 1945 are required to register for the 1944-1945 period and if this is done before December 31, 1945, no fine will be attached, according to the State Board of Health. Physicians were exempt from registering during the time they were in active military service.

The law which requires biennial registration carries a clause which allows the collection of an additional 50 cents for each month for which the physician is delinquent. Application cards for registering may be obtained from the State Board of Health, Jefferson City.

PREPAYMENT MEDICAL SERVICE PLANS

In compliance with a resolution adopted by the members of the various state associations attending a recent conference called by the Council on Medical Service and Public Relations of the American Medical Association, Dr. Carl F. Vohs, St. Louis, and Dr. Frank L. Feierabend, Kansas City, will represent Missouri at a meeting to be held November 30 and December 1 at the American Medical Association. The resolution recommending this session follows:

"WHEREAS, Medical service plans for prepayment of medical care have been in operation in the United States since 1917 and today, with approximately twenty-one states having plans in operation or about to be placed in operation, only about eight million American people are subscribers to these plans, or only about 6 per cent of the total population; and

"WHEREAS, We hope to eliminate forever the dangers of federal control of medical practice, efforts must be made to have a larger proportion of the working classes of this country insured under prepayment care plans and this seems at the present time to be possible only through a nationwide plan operative in all the states, now, therefore, be it

"*Resolved*, That this committee recognizes the great importance of definite action by the profession at this time with respect to prepayment for medical service; this being true, it is the recommendation of this committee that each of the forty-eight states be given an opportunity to enter in the discussion of this vital problem. Therefore it is recommended that a meeting be called for November 30 and December 1, 1945, in Chicago, with two representatives from the medical society of each state to go thoroughly into this matter; the findings of this group to be incorporated in a resolution to be presented to the House of Delegates of the American Medical Association with a request for its approval at its meeting on December 3 to 6, 1945, and that this committee recommends:

"First, that Dr. A. W. Adson of Rochester, Minnesota, act as chairman and call the proposed meeting on November 30 and December 1.

"Second, That the delegates to the proposed meeting consider the formation of a nucleus for the development of a program for medical service on a national basis, in correlation with the various states which now have plans in operation, and to assist those states which do not at present have medical service plans.

"Third, That a committee be appointed at this session to prepare an agendum for the proposed meeting on November 30 and December 1, 1945."

NEWS NOTES

The following program will be presented at a meeting of the St. Louis Surgical Society at the St. Louis City Hospital, December 19, at 8:30 p. m., to which all members are invited: "Primary Hemangiomatous Tumor of the Thigh Muscles," Peter O. Thomas, M.D., discussion opened by D. J. Verda, M.D.; "Splenectomy for Thrombocytopenic Purpura," Charles F. Sherwin, M.D.; "Diagnosis and Treatment of Acute Pancreatitis," Albert J. Motzel, M.D.; "Symptomatology of Acute Obstruction of the Ileum," E. L. Keyes, M.D., discussion opened by Stanley S. Nemec, M.D.; "Treatment of Acute Obstruction of the Small Intestine," Marshall W. Kelly, M.D., discussion opened by Charles Eckert, M.D.; "Segmental Colon Resection Versus Radical Resection for Cancer," Frederick Donn, M.D., discussion opened by J. W. Thompson, M.D., and Roland Kieffer, M.D.

Dr. Loyal Davis, Professor of Surgery, Northwestern University Medical School, Chicago, will be the guest speaker at St. Louis Medical Society on December 18 at 8:30 p. m. His subject will be

"Peripheral Nerve Injuries." This is the annual Robert J. Terry lecture.

Major Charles F. Lowry, Kansas City, has been promoted to Lieutenant Colonel.

Commander M. B. Roche, St. Louis, now chief orthopedic surgeon at the Naval Hospital at Dublin, Georgia, was the guest speaker of the Bibb County (Georgia) Medical Society at Macon, Georgia, on November 7. He spoke on "Management of War Bone Casualties."

Dr. James H. Danglade, Kansas City, now chief of the medical service in the U. S. Naval Hospital, Norman, Oklahoma, has been promoted to Commander.

Dr. Robert Elman, St. Louis, has received the Samuel D. Gross award of the Philadelphia Academy of Surgery for his work in the use of amino acids.

Dr. William E. Stone, Boonville, spoke before the Boonville Rotary Club on October 1.

Lt. Col. Daniel W. Myers, St. Louis, has been awarded the Legion of Merit for his services as chief of the medical service at the Seventh Station Hospital in the Mediterranean theater.

Col. Lee D. Cady, St. Louis, has been awarded the Croix de Guerre with Palm as commanding officer of the Twenty-first General Hospital.

Col. Howard A. Rusk, St. Louis, has joined the staff of the *New York Times* as an associate editor, according to press releases.

Dr. Herman E. Hilleboe, Medical Director and Chief of the Tuberculosis Control Division of the United States Public Health Service, will be the guest speaker at the thirty-ninth annual meeting of the Tuberculosis and Health Society of St. Louis on December 3.

Col. James Barrett Brown, St. Louis, has been assigned to the Office of the Surgeon General, Washington, as senior consultant in plastic surgery.

Dr. Daniel L. Sexton, St. Louis, was elected treasurer of the American Therapeutic Association at a meeting in Cincinnati on November 12.

The annual pilgrimage to the grave of William Beaumont in Bellefontaine Cemetery, St. Louis, was made on November 22.

PHYSICIANS RETURNED FROM MILITARY SERVICE

Outstate

Allee, James W., M.D., Eldon.
Appleberry, C. H., M.D., Flat River.
Baker, James M., M.D., Columbia.
Berney, Francis J., M.D., St. Joseph.
Bickel, Vern T., M.D., Lamar.
Brasher, Ben H., M.D., Lexington.
Bredall, Jerome J., M.D., Perryville.
Broyles, Watkins A., M.D., Bethany.
Camp, George H., M.D., Springfield.
Darnell, Thomas F. B., M.D., Macon.
Davis, Wilbur L., M.D., Charleston.
Day, Maxwell, M.D., St. Joseph.
Eberhard, Theodore P., M.D., Columbia.
Ellis, Coburn H., M.D., Sweet Springs.
Elkins, Ronald F., M.D., Springfield.
Evans, Ezra L., Jr., M.D., Springfield.
Eyermann, H. W., M.D., Warrenton.
Forgrave, John R., M.D., St. Joseph.
Garcia, Charles L., M.D., Mexico.
Hall, Frank W., M.D., Cape Girardeau.
Hanss, A. W., M.D., Springfield.
Hargrove, Fred T., M.D., Monett.
Harwell, J. Lester, M.D., Poplar Bluff.
Herbert, Charles T., M.D., Cape Girardeau.
Hogg, Garrett, Jr., M.D., Cabool.
Howe, Louis F., M.D., Brentwood.
Johnston, Andrew D., M.D., Waynesville.
Juden, A. G., M.D., Cape Girardeau.
Kelley, Gilbert B., M.D., Savannah.
Kelling, Douglas G., M.D., Waverly.
Kimes, Ira D., M.D., Cameron.
Kitchen, William M., M.D., Moberly.
Leech, Charles A., M.D., Columbia.
McKinstry, Karl V., M.D., DeSoto.
McPheeters, J. W., M.D., Poplar Bluff.
Post, Winfred L., M.D., Joplin.
Robinson, George G., M.D., Humansville.
Rost, William B., M.D., St. Joseph.
Schwartz, Eugene J., M.D., Springfield.
Scorse, S. W., M.D., Webb City.
Shelton, Edwin Olney, M.D., Eldon.
Silsby, Don J., M.D., Springfield.
Smith, James O., M.D., Clinton.
Smith, Rollin H., M.D., Rich Hill.
Spelman, Arch E., M.D., Smithville.
Squibb, Joseph W., M.D., Springfield.
Stewart, William J., M.D., Columbia.
Stone, William E., M.D., Boonville.
Summers, J. S., Jr., M.D., Jefferson City.
Thompson, F. Gregg, Jr., M.D., St. Joseph.
Vandiver, V. D., M.D., Chillicothe.
Wallace, Edwin S., M.D., Lexington.
Wallace, Hilen K., M.D., St. Joseph.
Wepprich, Michael S., M.D., St. Charles.
Wimp, J. J., M.D., Kirksville.
Wood, George F., M.D., Fulton.
Yancey, Daniel L., M.D., Springfield.

Jackson County

Baer, Alvin J., M.D., Kansas City.
Bennett, James Dale, M.D., Kansas City.
Bills, Marvin L., M.D., Kansas City.
Brown, Irwin S., M.D., Kansas City.
Byers, Philip L., M.D., Kansas City.
Caldwell, John K., M.D., Kansas City.
Chambers, James W., Jr., M.D., Kansas City.
Conrad, Joseph A., M.D., Dodge City, Kansas.
Cox, Kenneth E., M.D., Kansas City.
Curran, Desmond, M.D., Kansas City.
Diveley, Rex. L., M.D., Kansas City.
Gist, Wm. L., M.D., Kansas City.
Growdon, John A., M.D., Kansas City.



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Hook, Waller G., M.D., Kansas City.
Kyger, E. Ross, M.D., Kansas City.
Kuhn, William F., M.D., Kansas City.
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Morgan, David B., M.D., Kansas City.
Moss, Paul, M.D., Kansas City.
Myers, Robert M., M.D., Kansas City.
Saunders, Everett L., M.D., Independence.
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Stapp, Roth V., M.D., Kansas City.
Stockwell, Arthur L., M.D., Kansas City.
Wade, Frederick E., M.D., Kansas City.
White, George A., M.D., Kansas City.

St. Louis

Agress, Harry, M.D., St. Louis.
Allen, Henry C., M.D., St. Louis.
Altheide, J. Paul, M.D., St. Louis.
Alvis, Edmund B., M.D., St. Louis.
Anschuetz, Robert R., M.D., St. Louis.
Arbuckle, Millard F., M.D., St. Louis.
Arneson, A. N., M.D., St. Louis.
Backlar, Joseph, M.D., Richmond Heights.
Bartlett, Robert W., M.D., St. Louis.
Bartlett, Willard, Jr., M.D., St. Louis.
Bartnick, Mitchell L., M.D., St. Louis.
Beam, Sim F., M.D., St. Louis.
Bess, George C., M.D., St. Louis.
Bilsky, Nathan, M.D., St. Louis.
Bressler, Bernard, M.D., St. Louis.
Burford, E. Humber, M.D., St. Louis.
Burst, Emil A., M.D., St. Louis.
Cassidy, Leslie D., M.D., St. Louis.
Dowd, James F., M.D., Richmond Heights.
Drake, Truman G., M.D., St. Louis.
Drey, Norman W., M.D., St. Louis.
Dworkin, Saul, M.D., St. Louis.
Edwards, Joseph C., M.D., St. Louis.
Eimer, Charles E., M.D., St. Louis.
Ferrara, John P., M.D., St. Louis.
Fish, Virgil O., M.D., St. Louis.
FitzGerald, Leo P., M.D., St. Louis.
Foster, Leon, M.D., St. Louis.
Freedman, Harold, M.D., St. Louis.
Gay, Lee Pettit, M.D., St. Louis.
Glasscock, James R., M.D., St. Louis.
Goldwasser, Herbert V., M.D., St. Louis.
Greene, M. L., M.D., St. Louis.
Gulick, Charles R., M.D., St. Louis.
Hall, Lee A., M.D., St. Louis.
Hanser, S. Albert, M.D., St. Louis.
Hartnett, Leo J., M.D., St. Louis.
Hartwig, John A., M.D., St. Louis.
Hollo, Vencel W., M.D., St. Louis.
Jesgar, William, M.D., St. Louis.
Klein, Bert H., M.D., St. Louis.
Kohler, Louis H., M.D., St. Louis.
Littman, Lewis E., M.D., St. Louis.
Lohr, Curtis H., M.D., St. Louis.
LoPicolo, V. J., M.D., Richmond Heights.
Luedde, Fullerton W., M.D., St. Louis.
Mantz, Harry E., M.D., St. Louis.
Mattis, Robert D., M.D., St. Louis.
Mellies, Chester J., Clayton.
Merenda, Sam J., M.D., St. Louis.
Merz, Jean J., M.D., St. Louis.
Middleman, Isadore C., M.D., St. Louis.
Mowrey, William O., M.D., St. Louis.
Mulligan, Leo, M.D., St. Louis.
Myers, Daniel W., M.D., St. Louis.
Nester, Charles A., M.D., St. Louis.
Pareira, Morton D., M.D., St. Louis.
Patton, John F., M.D., St. Louis.
Pernoud, F. G., Jr., M.D., St. Louis.
Post, Cyril A., M.D., St. Louis.
Powers, Pierce W., M.D., St. Louis.
Pruett, Burchard S., M.D., St. Louis.
Richman, Elmer, M.D., St. Louis.
Ries, Douglas A., M.D., St. Louis.
Rosenbaum, Harry D., M.D., St. Louis.
Rosenthal, Leonard G., M.D., St. Louis.
Rothman, David, M.D., St. Louis.
Scherman, Victor E., M.D., St. Louis.
Schumacher, Cyril W., M.D., St. Louis.
Schwartz, Henry G., M.D., St. Louis.
Senturia, B. H., M.D., St. Louis.
Simon, Jerome I., M.D., St. Louis.
Stevens, Lawrence H., M.D., St. Louis.
Tapper, Stephen M., M.D., St. Louis.
Vandover, John T., M.D., St. Louis.
Wedig, John H., M.D., St. Louis.
Weinel, Francis G., M.D., St. Louis.
Weir, Don C., M.D., St. Louis.
Wilucki, Melvin R., M.D., St. Louis.

Cancer Clinics at the Ellis Fischel State Cancer Hospital

The schedule of clinics at the Ellis Fischel State Cancer Hospital, Columbia, for December, January, and February which all members are invited to attend, follows:

December 5: Skin and Melanomas.
December 7: Gynecological.
December 12: Head and Neck.
December 14: Breast.
December 19: Skin.
December 21: Cervix.
December 26: Gastrointestinal.
December 28: Miscellaneous.
January 2: Miscellaneous.
January 4: Gynecological and Genito-urinary.
January 9: Skin.
January 11: Breast.
January 16: Gastrointestinal.
January 18: Cervix.
January 23: Skin.
January 25: Head and Neck.
January 30: Bone and Lymphomas.
February 1: Gynecological and Genito-urinary.
February 6: Miscellaneous.
February 8: Breast.
February 13: Skin.
February 15: Cervix.
February 20: Gastrointestinal.
February 22: Head and Neck.
February 27: Skin.

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References: 1. West. J. Surg., Obst. & Gyn., 51:150, 1943. 2. Clin. Med. & Surg., 46:327, 1939. 3. Am. J. Obst. & Gyn., 46:259, 1943.

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WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

PRESIDENT'S MESSAGE

This is the season when we think of others. May we stop to remember that this month we celebrate the birthday of one who came 2,000 years ago to bring peace on earth and good will toward man.

As members of our Auxiliary, we have a real opportunity to promote good will in our own communities and in our state. To keep the peace we must have understanding, humility and faith.

May I take this time to wish each one of you a Merry Christmas and a New Year full of health and happiness? I wish to make Tennyson's words our Christmas prayer and our New Year's resolution:

"Ring out old shapes of foul disease
Ring out the narrowing lust of gold;
Ring out the thousand wars of old,
Ring in the thousand years of peace,
Ring in the valiant man and free
The larger heart, the kindlier hand:
Ring out the darkness of the land
Ring in the Christ that is to be."

MRS. HARRY M. GILKEY, President.

LEGISLATION REPORT

The Legislation Committee of the Medical Auxiliary should not attempt to deal with medical or public health legislation unless its aid has been specifically requested by the Medical Association. But it is pertinent that each Auxiliary Member be informed concerning proposed legislation and existing laws of interest to the medical profession. With this in mind the following is a brief résumé of recent medical legislation in Missouri.

H. B. No. 206 which provides that anyone using the prefix "Doctor" or "Dr." shall affix suitable words or letters after his name designating the degree held or stating the type of practice the individual is engaged in was passed and approved by the Governor on June 22. S. B. Nos. 85, 86, 87 and 88 which have the purpose of increasing the salaries of superintendents and assistant physicians in the state eleemosynary institutions and also to change the ratio of physicians to patients so that more physicians can be used in these institutions, have been passed and approved by the Governor.

H. B. 402 which would have granted almost equal rights to practitioners of osteopathy as medical doctors now have and in effect would have created by law two examining boards for the practice of medicine was defeated on final passage.

H. B. 138 which would provide four years of medical training at the University of Missouri with the last two years in Kansas City has passed the House and is in the Senate Committee on Education.

H. B. 280 providing that a county or a group of counties may vote a bond issue in order to build and maintain a county or community health center has passed the House and is in the Senate Committee on Fees and Salaries.

H. B. 291 which provides scholarships for medical students for each of the state's thirty-four senatorial districts has passed the House and is pending in the Senate Committee on Education.

Also pending are several bills pertaining to the new state Department of Public Health and Welfare. This question at the moment is in a state of fluctuation and it is too early to tell anything about the outcome.

MRS. N. J. EVERSOLL, Chairman.

The general session of the Woman's Auxiliary to the Southern Medical Association was held November 13 at the Netherland Plaza Hotel, Cincinnati, with the president, Mrs. John Pierpont Helmick of West Virginia, presiding. The meeting was informal with 200 women registered.

The highlight of the meeting was the decision made to use the Jane Todd Crawford Memorial Fund, of more than $2,000, as a loan fund to a medical student, graduate or physician for postgraduate work in gynecology at a southern medical school.

The new officers elected are: President, Mrs. W. W. Potter, Knoxville; president-elect, Mrs. W. R. Buffington, New Orleans; first vice president, Mrs. W. W. Crawford, Hattiesburg; second vice president, Mrs. R. M. Haynes, Marshall, Missouri; treasurer, Mrs. W. A. Selman, Georgia; recording secretary, Mrs. Phil E. Blackerby, Kentucky; corresponding secretary, Mrs. H. E. Christenberry, Tennessee; parliamentarian, Mrs. J. P. Helmick, West Virginia; historian, Mrs. William Hibbitts, Texas; Missouri councilor, Mrs. George Thiele, Kansas City. Mrs. M. Pinson Neal had the honor of installing the new officers. Mrs. Harry M. Gilkey, councilor for Missouri, gave her report and presented $5.00 for the Jane Todd Crawford Memorial from Missouri.

Other members from Missouri attending were Mrs. W. E. Martin, Odessa, and Mrs. B. Y. Alvis, St. Louis.

Mrs. W. E. Koppenbrink, Higginsville, our newly elected President-elect, was honored at a luncheon given at Lexington on October 26 by the Lafayette County Auxiliary. Mrs. Harry M. Gilkey was also an honored guest. Other guests were Mrs. John Powers and Mrs. William Patterson, Warrensburg; Mrs. Harry Griffith, Mrs. Gaines, Mrs. E. E. Gay, Richmond; Mrs. Shouse and Mrs. Buehrer, Lawson. Mrs. C. T. Ryland, president, presided. Mrs. J. W. Lightner gave an original toast and poem. Mrs. Gilkey spoke on the work and purpose of the Auxiliary. Mrs. Martin spoke on the Lafayette Auxiliary which has been organized twenty-one years.

The Auxiliary to the Dunklin County Medical Society was organized in Kennett on October 24 with eight charter members. Officers elected are: President, Mrs. E. L. Spence, Kennett; vice president, Mrs. Loys Wilson, Kennett; secretary and treasurer, Mrs. Wallace English, Cardwell; program chairman, Mrs. Paul Baldwin, Kennett; press and publicity, Mrs. G. R. Presnell, Kennett; Hygeia chairman, Mrs. Wallace English, Cardwell; Essay chairman, Mrs. U. A. V. Presnell, Kennett.

The St. Louis Auxiliary held its public relations day program on November 20. Dr. Helen Lane and Mrs. William H. Olmsted gave a demonstration of the work done by the Central Institute for the Deaf. Miss Adelaide Ruenyi planned a program on the Service Club for the Blind. Two members of each federated club in the city were invited to the meeting. Mrs. B. Y. Alvis presided and Mrs. George Epp had charge of the program.

DEATHS FROM DIPHTHERIA UNNECESSARY

The deaths of approximately 1,000 American children annually from diphtheria are unnecessary and could be prevented by early administration of antitoxin in adequate doses, according to the November 10 issue of *The Journal of the American Medical Association.*

"The available methods for control of diphtheria are sufficient to allow the complete elimination of this disease in the United States," *The Journal* said editorially. "The application of modern immunization methods of susceptible persons on a countrywide basis would serve to eradicate the disease. In 1943 the death rate from diphtheria at all ages fell below one per hundred thousand for the first time. At the same time the death rate in children under 10, in whom the disease is most frequent, has fallen below five per hundred thousand."

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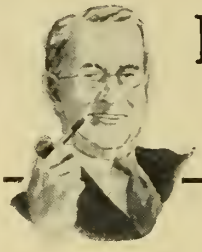


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Joe Marsh

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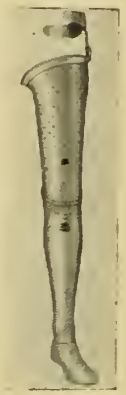
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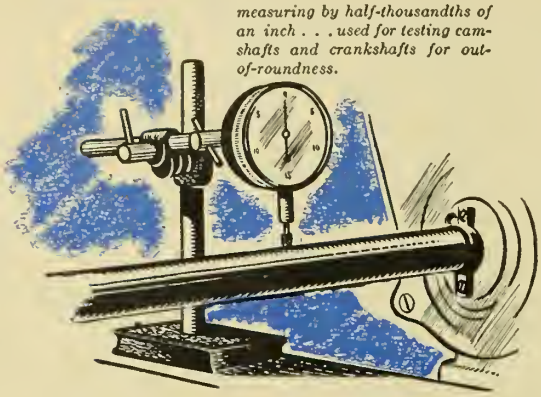
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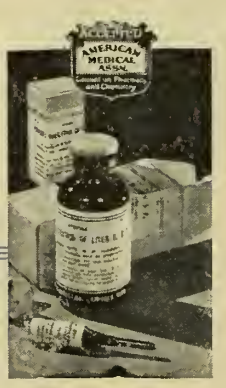
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